This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

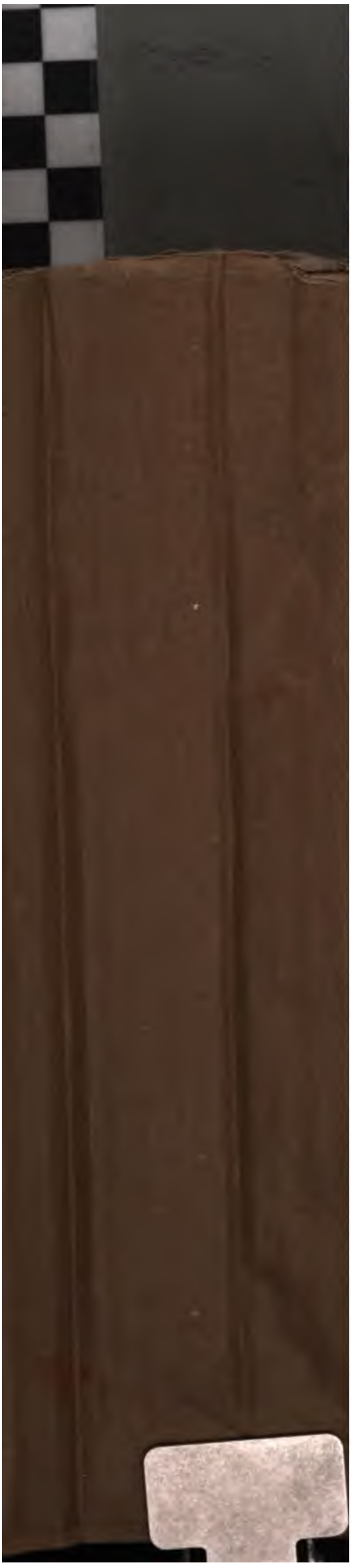
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`



LANE

MEDICAL LIBRARY

LEVI COOPER LANE FUND

LIBRARY
OF
COOPER MEDICAL COLLEGE
DATE Sept 1904
NO. 5557 CLASS 15
~~GIFT OF~~
Purchase

LIBRARY OF
Dr. C. J. Sargent.
Yosemite Building.

Dr. C. J. Sargent
Yosemite Building

LIBRARY OF
Dr. E. S. Sargent.
Yo Semite Building.
And please return it. You may think this a strange request, but I find that although many of my friends are poor arithmeticians, they are nearly all good bookkeepers.—SCOTT.

Dr. E. S. Sargent.
Yo Semite Building

C. S. Sargent M.D.
Stockton
Cal.

A

CYCLOPÆDIA

OF

DRUG PATHOGEN

ISSUED UNDER THE AUSPICES OF

THE BRITISH HOMŒOPATHIC SOCIETY
AMERICAN INSTITUTE OF HOMŒOPA

EDITED BY

RICHARD HUGHES, M.D. | J. P. DAKE,

WITH THE AID OF THE FOLLOWING CONSULTATIVE COM

Great Britain.	*United Stat*
J. DRYSDALE, M.D.	CONRAD WESSEL
R. E. DUDGEON, M.D.	E. A. FARRINGT
A. C. POPE, M.D.	H. R. ARNDT, M.

VOL. I.

Abies—Cannabis.

LONDON:
PUBLISHED FOR THE BRITISH HOMŒOPATHIC
BY
E. GOULD & SON,
HOMŒOPATHIC CHEMISTS AND PUBLISHERS,
59, MOORGATE STREET, CITY, E.C.

NEW YORK:
BOERICKE AND TAFEL,
145, GRAND STREET.

1886.

M.

LANE LIBRARY

PRINTED BY J. E. ADLARD, BARTHOLOMEW CLOSE.

1101
L995
1886

CONTENTS.

PREFACE.

In the Introduction which immediately follows we have given a full account of the origin, nature, and objects of the present work. We have only here to express our hearty acknowledgments of the assistance we have received in the course of it from divers of our colleagues. The members of our Consultative Committees (from one of which we have to lament the loss of Dr. Farrington) have always been ready with their aid when called upon. Dr. Dudgeon, especially, has been of invaluable help; and we owe to him the bulk of the translations from the German. Other special contributors in this way we have to thank are—Dr. Galley Blackley, who has rendered for us the provings of Jörg's *Materialien*; Dr. Pullar, to whom we owe the version of the Austrian provings of Bryonia; Dr. J. H. Clarke, to whom we are indebted for much of our Argentum nitricum; and Dr. Lloyd Tuckey, who has done similar work for our Aurum and Camphora. Besides these, we have to mention gratefully as helpers Drs. Edward Blake, Goldsbrough, and Herring, and a layman, Mr. Raphael Roche, of London; Mr. Rean, of Brighton; Drs. Imbert-Gourbeyre and Guérin-Ménéville, of France; Dr. Rubini, of Naples; and Drs. Ludlam, Mohr, and Neidhard, of the United States.

Presenting now our first volume to the National Societies which have authorised us thus far to proceed under their auspices, we trust we may continue to receive their endorsement and support.

THE EDITORS.

June, 1886.

INTRODUCTION.

THE object of the art of Medicine is the cure of disease. In pursuance of this aim the practitioner of the art—the physician—presses into his service all agencies which make for health. Among these are medicines. Medicines are substances, taken from one or other of the kingdoms of Nature, which when administered to a sick person modify favourably some part or the whole of his morbid state. They are discovered either empirically or rationally; and the rational mode of arriving at them is by inference from their physiological effects. To provide for such inference being made, all treatises on Materia Medica devote large space to the action of drugs on the healthy organism, human or brute. Considerations of space oblige their authors to do this by way of summary only, sometimes of (more or less theoretical) interpretation. It is conceived that the rational application of drugs to disease will be greatly furthered by the presentation in detail of the original experiments and observations from which our knowledge of their pathogenesy is derived. The gain is analogous to that brought by clinical to systematic teaching in acquiring the knowledge of disease. The latter deals necessarily with types and generalities; the former fills in the outline with instances in all their living variety.

In the above-mentioned considerations, sketched with all brevity, lies the philosophical basis of the present work. Its actual origin, however, and its special aims require a more extended treatment.

In the year 1796 Samuel Hahnemann published in *Hufeland's Journal* an essay "On a New Principle for Ascertaining the Curative Power of Drugs." This "new principle" was their selection according as their effects on the healthy resembled more or less closely the features of the morbid conditions to be treated. It was the rule afterwards formulated as "similia similibus curentur"—let likes be treated by likes. It was obvious that for carrying it out the first requirement was a full knowledge of drug pathogenesy,—much fuller than was afforded by the records of poisoning and over-dosing which were then available. Hahnemann collected these from all sources; but he completed them by carrying out a vast series of experiments of his own. That which Magendie began some ten years later with the lower animals, Hahnemann initiated and to a great extent accomplished in the far more important field of the human subject. His *Fragmenta de Viribus Medicamentorum Positivis* (1805), his *Reine Arzneimittellehre* (1811—1833), and his *Chronischen Krankheiten* (1835—1839), contain pathogeneses of nearly

one hundred medicines, obtained largely by "provings" on his own person and those of his friends and disciples. The impetus thus given has never lost its force in the school founded by him; and even among the followers of traditional medicine it has not been unfelt, although it has too often expended itself in the comparatively sterile field of experiment on animals. The result is an immense accumulation of the pathogenetic material required for working the homœopathic method. But it lies scattered in books and journals innumerable, and is inaccessible in its entirety to the ordinary student and practitioner. For these—and they are numbered by thousands—it is indispensable that a collection of drug pathogenesy should be made, which shall be available for their needs. Compendious statements of results are insufficient here, as the method of Hahnemann requires comparison between the totality of symptoms on the two sides. For homœopathic practice, therefore, even more than for other therapeutic applications of pharmacology, a presentation in detail of the original records is desirable and necessary.

The need is not now felt for the first time, nor is this the earliest attempt to supply it. The *Manual* of Jahr, the *Handbuch* of Noack and Trinks, were just such collections brought down to their day—now forty years ago; and the *Encyclopædia* of Dr. Allen (1874-1880) has performed a similar task for our own time. In the face of its existence —and it is certainly not yet superannuated—we may fairly be challenged as to our warrant for coming before the profession with another compilation.

Our answer to such challenge is twofold.

1. First of all, Dr. Allen's work is avowedly an *unrevised* edition of the homœopathic Materia Medica. He has felt it his duty, as editor, to admit all published provings made *bonâ fide*, whatever may hav been his private opinion of their worth. He has since shown* th as critic, he can discriminate as keenly—or almost so—as could desired; but this does not purge his ten volumes of their too abunc dross. Their publication has brought to an acute crisis the dissatis tion which had long smouldered over Jahr's *Manual*. It has been throughout the homœopathic body that the time has come for rev our pathogenetic material—for making an attempt, upon definite ciples, at such sifting as shall retain only that which is genuine the dubious and the worthless shall go to their own place.

The urgent need of such revision the editors have in diver under their own names, sought to demonstrate.† In thus they have but taken up the contention of many a precursor— Müller, Langheinz, Roth, Trinks, Arnold, Yeldham.‡ The r given below will enable anyone who desires it to ascertain th on which they and we have based our pleadings. On t occasion we do not wish to enter into details derogatory to n

* See his articles in the *North Amer. Journ. of Hom.*, 1880-2.

† See *Trans. of Amer. Inst. of Hom.* for 1857, 1873, 1874, and of Convention of 1876; *Brit. Journ. of Hom.*, 1873-5; *North Amer.* Feb., 1883; *The Knowledge of the Physician*, 1884, Sect. iv and xii.

‡ *Brit. Journ. of Hom.*, xxiv, 1; xxiii, 448; *Monthly Hom. Re*

workers in the past, and painful to those who—like ourselves—so sincerely respect their industry and good intentions. They wrought according to their light; in ours, which we are fain to think brighter, we must submit their work to a searching scrutiny, which will often lead to its rejection. This is best done *sub silentio*, as we have mostly been able to do it. If any are disposed to challenge our action in individual cases, we shall be ready to give our reasons for behaving as we have done. But, till required for defence, we prefer to reserve all accusations.

2. There are, moreover, other defects in Dr. Allen's work which make us unable to rest in it as a sufficient dealing with its subject. Not only have critics found,* but its editor has himself acknowledged† that the translations which form so large an element in it are often incorrect. We need not say that this is a serious matter, and to the purely English reader the very suggestion of such a thing must impair the confidence without which such a work cannot be used. Again, in his earlier volumes especially, Dr. Allen has too frequently worked with second-hand material, and has thus fallen times without number into the pits which such proceeding opens at every step. Once more, these earlier volumes do not exclude so-called "clinical symptoms," —*i. e.* such as have disappeared during the use of the medicines under which they are placed; and these not always distinguished from their surroundings. Dr. Allen has indeed intended so to distinguish them (by the usual ° prefix); but has frequently taken matter from compilations where no such sign is used, and thus given as pathogenetic (*e. g.* under "Calcarea phosphorica") scores of symptoms which are obviously of clinical origin.

The result is that this great work, in which is garnered up all our pathogenetic wealth, which has deservedly superseded Jahr's and all other compilations as our Symptomen-Codex, is to a large extent untrustworthy. We would not have it supposed that we are unmindful of the vast debt homœopathy owes to its editor for his labours upon it. It has laid the foundation of the Materia Medica of the future, though itself cannot be so regarded; and if the present undertaking succeed in taking that place, it must ever recognise in Dr. Allen's collection the fountain-head of its own existence. Without its life ours had not been. Guarding ourselves thus against misapprehension, let us repeat—a large part of the *Encyclopædia of Pure Materia Medica* is untrustworthy, and the work must be done over again.

This was the conclusion arrived at by the British editor, after a minute examination of the first thirty medicines of Dr. Allen's first volume.‡ About the same time, in the presidential address delivered at the British Homœopathic Congress of 1880, Dr. Yeldham called attention to the unsatisfactory state of our Materia Medica, and urged action being taken for its revision. The result was the passing, at the instance of the two practitioners just named, of a series of resolutions

* *Hom. Times*, Dec., 1879.

† "A Critical Revision of the Encyclopædia of Pura Materia Medica." (One part only published, including Hahnemann's medicines as far as Carbo vegetabilis.)

‡ See Appendix to *Brit. Journ. of Hom.*, vols. xxxix and xl.

by the British Homœopathic Society, bearing date March, 1882, declaring the time to have come for such reconstruction, and expressing its readiness to undertake the task. A Committee of seven members was named for the purpose, and instructed to present specimen medicines, which it continued to do during the next two years.

In the meantime, the American editor had been appointed—in 1882—chairman of the Bureau of Materia Medica in the American Institute of Homœopathy; and he took advantage of his position to do something towards purging our symptomatology. For a long time past he had advocated a thorough re-proving of the constituents of the Materia Medica; but, finding the profession unwilling to make the necessary efforts for this purpose, he proposed co-operation with what was being done in England to revise and re-present existing material. This was determined on in 1883, and much correspondence ensued,—the issue of which was a vote of the British Society that Dr. Hughes, as a delegate therefrom, should attend the annual meeting of the Institute in June, 1884, and should in conference with the members of the Bureau endeavour to arrive at some conclusion which might be presented to the two national bodies for their acceptance. The result of such conference was a decision to recommend the formation of a 'Cyclopædia of Drug Pathogenesy,' to be carried out under the following instructions:

"I. GIVE THE SCIENTIFIC NAME AND SYNONYMS OF EACH ARTICLE AND ITS NATURAL ORDER.

"II. GIVE A NARRATIVE OF ALL PROVINGS, STATING THE SY PTOMS IN THE ORDER OF THEIR OCCURRENCE, WITH SUCH CONDENSATI AS COMPLETENESS ALLOWS.

"III. GIVE, IN DESCRIBING VIRULENT DRUGS, SUCH SELEC CASES AS MAY PROPERLY ILLUSTRATE THE VARIOUS FORMS OF POI ING BY THEM, CONDENSED AS BEFORE.

"IV. GIVE THE RESULTS OF EXPERIMENTS ON THE I ANIMALS, WHERE OF VALUE; GENERALLY IN ABSTRACT.

"V. TRACE ALL VERSIONS AND COPIES TO THEIR ORIGINAL VERIFY, CORRECT, OR REPRODUCE THEREFROM.

"VI. INCLUDE, AS A RULE, NO DRUG THAT HAS NOT PATHOGENETIC POWER IN TWO OR MORE PERSONS.

"VII. INCLUDE IN THE NARRATIVES, AS A RULE, NO S REPORTED AS OCCURRING FROM A DRUG ADMINISTERED TO T

"VIII. INCLUDE NO SYMPTOMS REPORTED AS OCCURRI PERSONS OF PROVERS UNDER THE INFLUENCE OF OTHER DRUG IN CONDITIONS OR CIRCUMSTANCES NOT ALLOWING A CLE TION OF THE PATHOGENETIC INFLUENCE OF THE ARTI CONSIDERATION.

"IX. INCLUDE SYMPTOMS REPORTED AS COMING FRO TIONS ABOVE THE 12TH DECIMAL ONLY WHEN IN ACCOR PTOMS FROM ATTENUATIONS BELOW."

This recommendation was adopted by the America subsequently by the British Society, the physicians nam page being appointed in their respective countries sultees.

A few remarks upon the rules thus formulated may now advantageously be made.

1. The first rule needs no exposition. Our headings are to be sufficient to identify precisely the substance whose effects we are to record, and to indicate its natural relations. We do not, it will be observed, propose to enter into its pharmacy. In our account of each proving we state the form in which the drug was employed; and anything more than this would be irrelevant to a Cyclopædia of Pathogenesy.

2. The second rule prescribes the form of our Materia Medica, and is of the utmost importance. Hahnemann kept in manuscript the daily records made by himself and his fellow-provers; publishing them to the world in the form of a schema, in which the individual symptoms elicited by the drugs were distributed according to their anatomical seat. Many provers of his school have imitated him in so doing. Others—like the Austrians—have recorded their experiences in detail; but when these have been brought together for the use of the student and practitioner it has hitherto been thought necessary to cast them also into schema form. In this respect the present work makes an entirely new departure. Whenever we have provings in narrative, we so give them; and even when they exist only in a schema, we have endeavoured—by isolating the symptoms of each prover, and arranging them in accordance with the time-indications generally given—to restore them to something like individuality and sequence.

It should scarcely be necessary to vindicate such procedure. Who, if he had to learn disease from books, would be content to have the symptoms of a given malady presented to him in the Hahnemannian schema? We have so to learn drug-disease; and as he would crave for clinical cases illustrating the evolution of each disorder in its various forms, so is our need here. In the series of narratives given under each drug we have as many varieties of its specific sick-making power, from which we can learn its general action, its kind and character, and which we can fit—as likes to likes—to the cases of disease which come before us.

The only objection to such presentation of our provings would be the voluminousness of the result, as illustrated in the 104 pages of the *Annals* of the British Homœopathic Society required for the pathogeneses of ten of the acids, and the 16 pages of the *British Journal* occupied by that of aconitinum. But here comes in our rule of condensation, not contemplated when the above-mentioned were compiled, but since illustrated in the instances of carbolic acid* and of sulphur.† By this potent solvent a considerable reduction of bulk can be effected, and this without any sacrifice of the *minutiæ* of pathogenesis so justly prized in homœopathy. By its use, moreover, we shall be enabled to present our finer and poorer material in just proportion: the former we can give in all reasonable fulness, while the latter will bear a considerable degree of epitomising.

But, while there are few who will not welcome the detailed pro-

* *Monthly Hom. Rev.* for April, 1883.
† *Annals* for August, 1883.

vings, there are some who ask, "Why not give a schema in addition?" The answer is, first, that to do so would double the bulk of the work, and, by greatly increasing the labour of the workers, would treble the time taken in its accomplishment. But, secondly, we would reply that the schema is quite unnecessary for the purpose thought to be subserved by it, viz. to enable the practitioner readily to find any symptom of which he is in search. This he can always do by means of an index. Homœopathists have had to make such indices, in the shape of repertories, for their schemas themselves; the latter are alike insufficient without them, and inadequate as substitutes for the original narratives. They thus fulfil no useful purpose, and may be banished to that limbo from which it may be regretted that they ever arose. Hahnemann designed the schema to obviate the necessity of an index, which in the *Fragmenta de Viribus* he had given, but from which, in the more extensive *Reine Arzneimittellehre*, he naturally shrank. This, indeed, he escaped; but in doing so he ruined his text, and irreparably prejudiced the reception of his work by the profession at large. We have taken the warning, and given the text on its own merits. Then, when by existing repertories, or by the index we shall ourselves ultimately compile, a drug is credited with any symptom, on turning to its pathogenesis the practitioner will find that symptom in its natural place and surroundings, will learn how it was elicited and in what connection it arose. In this way symptomatic prescribing will be just as easy, and far more rational, satisfying, and successful.

3. The next rule is:—"Give, in prescribing virulent drugs, such selected cases as may properly illustrate the various forms of poisoning by them, condensed as before." That we should give toxical effects is unquestionable, but how to do so admits of difference of opinion. I the volume just issued by the Hahnemann Publishing Society, D Dudgeon and Hayward have included in their articles all the cases poisoning by aconite and of rattlesnake bites which they could fin record. This is very well for exhaustive monographs, where sp unlimited; but a work like ours would be swamped by such ceeding. Nor is it necessary. Poisoning elicits the general rath the finer actions of a drug, and the latter are fully portrayed provings. A few typical cases are therefore sufficient to illustr recognised forms of poisoning by each substance, as descr treatises on toxicology; and to these may be added any except genuine phenomena, such as the acute rheumatism once indu toxical dose of colchicum. In this way Dr. Dudgeon's 7 poisonings have, in our work, been reduced to 13.

4. The next rule directs that, in addition to provings and we should "give the results of experiments on the lower ani of value; generally in abstract." We know the objections w of our school have made, from Hahnemann downwards, to derived from this source. We recognise their justice, w against exclusive or even predominant reliance on such exp but we cannot doubt the positive value of it. It giv alike for pushing and for analysing drug-action whic affords. Take bryonia, for instance; how valuable is

derived from the animals poisoned with it in the Austrian provings as to its power of inflaming the serous membranes! How, again, could we do without the addition to our knowledge of phosphoric influence supplied by Wegner's experiments on rabbits? With the proviso—"where of value," and the limitation—"generally in abstract," we think that nothing has been lost, and much gained, by following this rule.

5. Rule V is a very important instruction. No one who has not analysed a number of pathogeneses, as now existing in Jahr or Allen, can have any idea of the number of errors there are to correct—errors resulting sometimes from haste or misapprehension, but most commonly from working with second-hand material. The fact is that all our bookmakers have been copying one from another, and accumulating faults as they have gone on; so that our symptom-lists are made of shoddy instead of new cloth. In the revised Materia Medica we have, whenever possible (and it is rarely otherwise), gone back to the originals; so that in substance, as well as in form, its pathogeneses may be fresh from Nature's mint.

We now come to the rules of sift, embracing those from the VIth to the IXth inclusive.

6. The VIth says: "Include, as a rule, no drug that has not shown pathogenetic power in two or more persons." While a certain discretion is allowed here, to prevent the rejection of obviously valuable matter, a security is given in the direction of trustworthiness which most will welcome. It proceeds upon the ancient canon that "at the mouth of two or three witnesses every truth shall be established." It reduces to a minimum the peril of mistaking coincidences for drug-effects, and so loading the Materia Medica with inert and useless constituents.

7. The next is: "Include in the narratives, as a rule, no symptoms reported as occurring from a drug administered to the sick." Here, too, we have allowance made for exceptions; there are observations made on patients, such as those of Grandi, Michéa, and Lussana, with atropia in epileptics, which are of indubitable value. But, as a rule, Hahnemann's caution holds good—"how, even in diseases, amid the symptoms of the original malady the medicinal symptoms may be discovered, is a subject for the exercise of a higher order of inductive minds, and must be left solely to masters in the art of observation." The examination of his pathogeneses has revealed how sadly, even in his hands, this mode of obtaining symptoms has been abused; and still more disastrous has it been when adopted by followers less discriminative than himself. Our wisdom is to reject *from the Materia Medica* supposed drug-effects thus derived. They belong rather to clinical guides and therapeutic hints, where their dubious worth need not prevent their tentative employment in practice.

8. Rule VIII. This instruction *va sans dire*.

9. Last, we come to the difficult question of the employment of provings with infinitesimal doses. The rule respecting it stands thus:—"Include symptoms reported as coming from attenuations above the 12th decimal only when in accord with symptoms from attenuations

below." This was the only point on which any difference of opinion was expressed at the meeting of the American Institute; but though one or two members advocated the omission of the rule, they could gain little support for their amendment. In truth, some limitation must be made; this sort of thing, as Hahnemann said for the high-potentisers of his day, cannot go on *ad infinitum*. He proposed the 30th as the limit for the sick. We choose the 6th for the healthy—which, having regard to the difference of susceptibility in the two states, seems fairly correspondent. So reasonable is it, that although two out of the seven members of the Materia Medica Bureau were avowed partisans of high dilutions, the rule received their assent. It must be regarded simply as a working compromise. It involves no judgment as to the activity of attenuations above the 6th; it does not even exclude effects referred to them if in accord with those obtained from more appreciable quantities; it simply leaves out, as lacking sufficient evidence, symptoms occurring solely under their supposed influence. It is possible that some few genuine drug-effects may thus be omitted; but this chance is more than outweighed by the certainty of the greater acceptableness of pathogeneses so limited.

Guided by the foregoing instructions, we have prepared the hundred or more pathogeneses which fill the present volume. From the first we have invited the criticism of our colleagues, with the view of making subsequent issues more generally acceptable; and have diligently perused the notices of the successive parts contained in the homœopathic journals of the world. From our second part onwards we have practised condensation with less unsparing hand, our first essays of this kind being (sometimes justly) regarded as over-severe. The Appendix to the fourth part contains reparations of this error, with all *corrigenda* and *addenda* that have come to the editors' knowledge. Each volume will contain a similar supplement, bringing our knowledge down to the date of its publication.

A few remarks must now be made upon special features in our work.

1. It will be noticed that the pathogeneses of Hahnemann and his fellow-provers are simply referred to, and are not incorporated in our text. This proceeding (which was among our instructions) arises from no light esteem of the materials in question, many of which we regard as of the highest value. Such as they are, however, we think that they should remain the heritage of the profession in the form in which Hahnemann bequeathed them. We have no means of verifying, correcting, illuminating them, or of re-forming their order (the day-books of the provers not being extant). The *Materia Medica Pura* and the *Chronic Diseases*, translated into the English tongue, must be regarded as the earlier volumes of the present series. Our index will include them, and they should be possessed by every student of drug pathogenesy.

2. We have adopted, after Pereira, two sizes of type,—the smaller being used for minor medicines, and for matter of inferior importance or quality bearing upon drugs of higher rank. In this way we have been able to include much which would have been missed; but with

which we should not have felt justified in burdening the student, were no indication given of its merely secondary value. As it is, he may pass over all matter in small type, at any rate in his earlier studies; while the practitioner will find nothing omitted which has any claim to be regarded as genuine and instructive.

3. The abbreviations we have employed are few and obvious,—as "m." "e." "n." for morning, evening, night, "d." "h." "m." for day, hour, minute, "r." "l." for right and left. Occasionally "m.m." is used for mucous membrane. Our chief verbal condensation has been effected by leaving out the articles; which can always be supplied from the reader's own mind.

And now a word as to this reader,—as to the persons for whom the present work is designed. It seems to be the impression of some that our Cyclopædia is a mere luxury of pathogenesy, quite beyond the requirements of the student and the practitioner, and only really valuable to the teacher or writer on the subject. This view appears to us entirely mistaken. It shows how injurious has been the influence of the schemas which have hitherto reigned in the homœopathic school, that when pure pathogenetic knowledge, in its primary form, is presented to the mind, there seems but little relish for it. We hold that the true way of learning the physiological action of drugs is the study of a series of cases illustrating the disorder they cause. Introductions should precede, such as the student gets from the lectures he hears; and commentaries should follow, analytic and exegetical, made best by himself, but supplied in abundance by the text-books he has at command. Between the two, however, as for the student of disease there is the observation at the bedside, for the student of drug-action there should be the clinical records of pathogenesy, as we have them in the present volume. They will be found full of life and meaning; and Materia Medica, hitherto the dullest and most hopeless, will become the most interesting of studies.

For the student, then—whether one actually *in statu pupillari*, or one become such by the necessity of learning the fresh therapeutics of homœopathy,—for the student this work is primarily designed. For him we trust that it will supersede altogether the dreary symptom-lists with which he has so long been burdened. To the practitioner it does not so obviously appeal, and he must wait till the index is made ere he can use it for reference in actual practice. But in the meantime, if he be alive, he must still in some degree be a student, and may learn many a new truth concerning his most familiar remedies by perusing these records of their action—not to speak of deliverance from illusions.

Possessed with such convictions, we commend this first-fruit of our toil to the acceptance of the homœopathic body, for whose advantage we hope in a few years more to complete the remainder of our task.

A

CYCLOPÆDIA

OF

DRUG PATHOGENESY.

ABIES NIGRA.

Abies nigra, Poir. Black Spruce. Nat. Ord., *Coniferæ*.

I. *Provings.*—1. Miss L., æt. 19, sanguine temp., very healthy, proved saturated solution of gum in alcohol at 98°. From 2 drops, no perceptible effects; after 3 did not sleep as well as usual, and had a little headache; after 4, very hungry, and wakeful at n., bad feeling in head; pain after a hearty meal. After 5 drops, choking sensation in throat; easily out of breath; pains in bones; dulness during d., but wakefulness at n.; headache, commencing 1 h. after dose, until 1 h. before next; pain in small of back; severe pain in stomach, extending to l. side; is very low spirited and exceedingly hungry. After 7 drops, headache increased; alternate heat and cold; bad dreams. Continuing to get worse, she left off proving. (Dr. SEAMAN, *Ohio Med. and Surg. Reporter*, i, 85.)

2. Miss B., æt. 19, dark hair and blue eyes, took same tinct., 2 drops twice daily for 2 d., then 3 drops in same way. Some sense of fatigue. After 4 drops, distressing pain in stomach; after 5, nervousness with dizziness. After 6 drops, cheeks flushed, head hot, severe headache; total anorexia in m., but great craving for food at noon and n.; pains and aching in bones; inability to think or study; very melancholy; sleepy during d., but restless at n. Continued 6 drops during 3 d.; all symptoms increased, especially pain in stomach, which remained some days after omitting drug, actually worse than during proving. Constipation during proving, but still more for weeks after it. Catamenia missed twice: no irregularity before. Forced by sense of illness to discontinue proving. (*Ibid.*)

3. Dr. ST. CLAIR SMITH has frequently found chewing the gum produce sensation as of an undigested hard-boiled egg in stomach. (ALLEN'S *Encyclopædia*, i, 2.)

4. Aug. 10th, 11.30 p.m.—I took 10 drops of 18th potency. After about ½ h. I felt a severe pain in or about meatus auditorius externus, which continued to increase for 5 m. or more, and then gradually subsided. The pain was quite peculiar and different from anything I ever before experienced. This was followed by slight dyspnœa, which was increased by lying down. It soon subsided, however, and I slept immediately after retiring, which I think was soon after midnight. I felt no symptoms on the following day, and at 10.30 p.m. I took 10 drops more, and retired in about half an hour. Soon after lying down I felt a choking suffocating sensation, as though my lungs were compressed, so that I could not fully expand them. (I had experienced a similar sensation several years ago, when labouring under

some disorder of the chest.) There was some increased action of the heart; it did not beat faster than usual, but harder, that is, the volume of blood which entered it seemed to be greater. The pain in meatus of l. ear was not so marked as on e. previous, but still it was plainly present. It seemed on this occasion to flit about, not settling down on a single point. As on e. previous, these symptoms continued for 15 or 20 m., and then subsided and did not return. On the succeeding days I took 5 drops 3 times a day, but did not develop any new symptoms. The symptoms before mentioned were present, but were not so marked as on the former occasions. Aug. 18th, I took 6 drops of the 9th potency in e., but did not perceive any symptoms. The next e. I took 12 drops of the 9th, and developed in a marked degree the same symptoms as after 10 drops of the 18th. Nothing new, however, appeared. I followed this up by taking 6 to 15 drops of the 9th, but I think I got the plainest results from about 12 drops of this potency. I have taken various potencies from the tincture up to the 30th, and have invariably confirmed the proving, to wit, pain in external meatus, heavy slow beating of heart, dyspnœa, and, finally, sharp cutting pains in the heart. This last was very severe from the 30th, so severe that I was obliged to take Aconite to antidote it. (J. B. BELL, M.D., Allen's *Encyclopædia*, x, 241.)

ABSINTHIUM. See ARTEMISIA ABSINTHIUM.

ACIDUM ACETICUM.

Acetic acid. Sour principle of vinegar—product of acetous fermentation of wine, &c., and of pyroligneous acid—result of destructive distillation of wood.

I. *Provings and Observations.*—1. BERRIDGE records three cases, and HERING one, in which vinegar habitually produced flushing of face. In one case this lasted for hours; in two heat accompanied, in one of these and one other perspiration. (*M. H. R.*, xv, 297; *A. J. of H. M. M.*, ix, 245, viii, 222.)

2. Threadlike and noticeably retarded pulse, and decrease of 1·35° F. in temperature, after foot-bath of strong vinegar. (BOBRIK, in Ziemssen's *Cyclopædia*, xvi 346.)

3. GMELIN frequently drank, more or less diluted, ʒij to ʒiv of pure pyrolign acid. Only local effects were noticed,—burning when acid was taken strong, always salivation, eructations, nausea, and tendency to vomit. Symptoms lasted 2 hrs. (*Hygea*, x, 192.)

II. *Poisonings.*—1. Woman took over a pint of vinegar. When seen 3 h. a was in cold perspiration, trembling, and much alarmed. Breathing very labo and hurried; countenance wild, pupils dilated; tongue dry and cold; pulse 9 feeble; abdomen much distended, with very acute pain in præcordia, slightest p there causing her to shriek out. Had drunk largely of water. Knew no o recollected nothing since taking vinegar. No pain, heat, or constriction o After 6 h. headache, and after 2 d. slight continued fever. (DAVID, *Bo and Surg. Journ.*, xxxvii, 134.)

2. A plump and blooming young woman took small glass of vineg reduce size. Soon lost flesh and colour; after a month cough set in, fo slight fever, dyspnœa, wasting, night-sweats, anorexia, finally œdema of e diarrhœa, and death. No blood or pus expectorated, but much white phlegm. At autopsy lungs found stuffed with non-suppurating tu (DESAULT, *Diss. de Médécine*, 1733, i, 367.)

3. A nursing woman took large quantities of Acet. rosarum. Mil dilute (sp. gr. 1002°), bluish and almost transparent, of sour taste and wasted and died with diarrhœa. Later, mother also sickened, becam chronic metrorrhagia, and dwindled to a skeleton. (LANDERE *Repertorium*, 1847, xlv, 54.)

4. A young German worked for 12 mos. in a vinegar factory. fell off, and sleep became broken (taking food promoted it). Later,

back, felt as if abdomen would sink in, causing laboured breathing. Rested better on abdomen. Cold drinks lay heavy on stomach and caused pressure: cold victuals also distasteful. From florid became pale and thin. Vegetables now disagreed, save potatoes; bread also, and still more butter; had aversion to salted things. Meat could be taken sparingly; cheese and eggs agreed. Food tasted right, but went down with difficulty, causing slow eating. Tongue normal. Grieved much, and sighed often, which relieved. Going upstairs was very difficult. Treatment (with *Natr. mur.*) relieved, and he was able to drink cold beer again; but later symptoms returned, with increased dyspnœa and ready fatigue, so that he had to leave factory. (HERING, *A. J. of H. M. M.*, viii, 222.) [The ascription of the above symptoms to the vinegar may fairly be questioned. Nevertheless, as this *seemed* to be the exciting cause, it has been thought well to put them on record, as their minute detail would—should their genuineness be confirmed —be very instructive.—EDS.]

ACIDUM BENZOICUM.

Benzoic acid. The peculiar principle of all true balsams. Ordinarily obtained by sublimation from gum benzoin, the concrete juice of the Styrax benzoin of Peru.

I. *Provings.*—1. SCHREIBER took in two days about ½ oz. in divided doses, and experienced feeling of abdominal warmth spreading over whole body, accompanied by increase of pulse-rate by 30 beats, and by increased perspiration and excretion of phlegm, with slight disturbance of digestion and some confusion of head. (STILLÉ, *Mat. Med.*, sub voce.)

2. KELLER took before bedtime about 37 grs. in syrup. During night perspired strongly, which was probably effect of acid, as he was in general with great difficulty made to freely perspire. He could perceive no other effect, even when, next day, he took same dose three times; nor did perspiration recur. Urine voided next morning was unusually acid, and yielded considerable amount of hippuric acid, but also contained normal proportion of uric acid and urea.* (LIEBIG'S *Ann. d. Chem. u. Pharm.*, xliii, 109.)

3. LINGEN took of a solution in alcohol, gr. ½ to ℥j, 5 drops m. and e. for 9 d. On first 3 d. had frequent pulse. On n. of 4th d. was awakened after midnight with violent pulsation of heart and temporal arteries (110 in minute), without external heat, and could not sleep again. In m., tongue was covered with white mucous coat; there was nausea and total loss of appetite. By 4 p.m. these symptoms had vanished; but every n. for 8 weeks afterwards he awoke with strong internal heat, and hard, bounding, but not quickened pulse, so that he must lie awake upon his back, because of puffing in his ears from pulsation of temporal arteries, preventing his falling asleep again. Urine was at first only increased in quantity, not in frequency. In a

* It was at first thought that benzoic was changed into the more nitrogenous hippuric acid at the expense of either the uric acid (Ure) or the urea (Garrod). The results of Keller, however, have generally been obtained. The conversion seems to take place in the kidneys. It is stated by Booth, Boyé, and Martin, as the result of their experiments (*Trans. Amer. Phil. Soc.*, 1865, p. 185), that the quantity of hippuric acid obtained from the urine is greater by one-third than that of the benzoic acid taken.—EDS.

few days micturition became exceedingly frequent, with strong pressing. Urine of aromatic odour and saline taste; odour long retained; most in forenoon. Other symptoms were:—On two forenoons in succession, whilst sitting, pressure on vertex and spinal column, as if these were pressed together by an elastic body (?), so that he bent himself involuntarily, stretching forwards; this sensation, without being painful, is productive of extraordinary anxiety. Stitching and burning first in r. great toe, then in l. (m., whilst lying down). On 9th d., feeling of coldness of knees as if blown upon by a cold wind. (*Mat. Med. of American Provings.*)

4. NUSSER took gr. 80 of 2nd trit. at one dose (gr. 0·125 of acid). On 1st d. had uncommon discharge of flatus downwards in afternoon and e.; in e. fine stitches in anus, in middle of chest, in outer r. arm and inner l.; in bed, stitches in chest on deep inspiration, and slight general perspiration; sleep somewhat disturbed by dreams. 2nd d.—In m., in bed, some sweat, especially on face, with moderate heat. Slight cough, immediately after rising; in middle of chest pain at times, a kind of stitch; breath at times somewhat whistling. Deep-seated tearing and stitching in several joints, especially of hands and feet; fingers appear swollen, a ring becomes too small. From 3rd to 7th d. same sensations in joints, and fingers remain somewhat swollen. On 7th d. constant fine but violent stitches in upper hepatic region, superficial, not worse on pressure. On 6th and 7th d. found himself constantly omitting words in writing,—an unprecedented thing with him. By 8th d. symptoms had vanished. (HERING, *Amer. Arzneiprufungen.*)

ACIDUM BORACICUM. See BORAX.

ACIDUM CARBOLICUM.

Carbolic acid, phenic acid, CH_6O. Obtained from coal tar by fractional distillation and purification.

I. *Provings.*—1. Dr. BACMEISTER, æt. 39, of nervous-sanguin temperament. Feb. 7th. Five drops of 1st on sugar caused sense freedom and expansion in lungs (5 m.); coryza in open air only (m.); frontal headache, slight (1 h.); crampy stitch in l. groin (2 l 11th. Five drops of 12th caused, very soon, slight heat in l. face a forehead, and in 15 m. sense as of fine electric sparks in l. ala r sternal end of r. clavicle, middle finger of l. hand, and verte succession. It changed slowly to a pricking itching, with des rub, and relief therefrom. After dinner long-continued hiccoug in e. entire disinclination to study. Two d. after, swelling and s of l. cheek, opposite molars. Throughout and subsequently much freer than usual. (*Proving—Carbolic Acid*, Chicago, 18

2. Dr. HOYNE. Sanguine-bilious; very susceptible t Jan. 20th. Took 5 drops of 6th cent. Slight and transient pains, or tingling itchings, were felt in various parts; but th more persistent burning pain in vertex and r. temple, w flatulence and eructation, and at one time incessant yawnin red blood was blown from nose in e. 30th. Same dose. and itchings, flatulence, yawnings and headache recurred also constant inclination to cough, and soreness on pressu

of larynx. He was feverish at n.; and next d his urine was more copious, and had a strong smell. Feb. 4th. Took 5 drops of 3rd cent. Besides the usual symptoms, he had (15 m.) soreness of throat on empty deglutition, with frequent sharp prickings in it, and (next day) very severe aching pain in r. hip, shifting to l. shoulder. From 7th to 12th had a vesicle, ending in a pustule, on centre of nose.* (*Ibid.*)

3. Miss G. H., æt. 11. Jan. 20th. Took 2 drops of 6th cent. at 4.15 p.m. At 4.20 very dizzy; things seem moving backwards and forwards; pulse 95; cannot see across room. 4.30. Nausea; feet feel heavy. 4.40. Pulse 100; cannot walk straight; drowsy and tired in e.; next m. dull pain in r. ankle and l. knee. (*Ibid.*)

4. Mrs. T. S. H. Jan. 20th, 4.15 p.m. Took 3 drops of 6th. Burning in stomach, forehead and throat in succession; heavy pain from forehead to occiput; things seem to move before eyes. In 1½ h. these symptoms had disappeared, but later nausea came on, and continued till noon next day. On 22nd there was a slight vesicular eruption all over body. (*Ibid.*)

5. J. T. H., æt. 21. Feb. 7th, 8.30 p.m., took 5 drops of 6th. In 5 m. dizziness, headache as in No. 4. In 10 m. pulse had risen from 66 to 90, and it subsequently fell only to 80. Face flushed and burning; itching in various places, belching, and yawning, were frequent during evening. Had hard headache during night. In morning this continued, and he felt as if a band were round forehead. Woke up in middle of night bathed in perspiration. Pulse at 9 a.m. 100. By noon symptoms had disappeared. On 10th a vesicular eruption appeared on hands and all over body, itching excessively; rubbing relieves itching, but leaves burning pain. This resisted medication, and did not disappear till 28th. (*Ibid.*)

6. Dr. S. P. Hedges. Feb. 5th. Five drops of 6th taken at 11 a.m. caused no symptoms that d., but next m. he awoke with a dull, hot, constricted feeling in head, especially in forehead. This lasted all d., becoming an ache at times, and until late at n. Before rising he had also, for 5 or 10 m., an acute piercing pain in l. supra-orbital ridge; it ceased on rising, but left spot affected sore for more than one day. 27th. Same dose, taken at 3.15 p.m., brought on next m. same headache, but more severe. Pressure relieved, but only at first. Head seemed to swell, and felt hot, as if heat radiated from it. Passed much urine. Next d. (as before) felt soreness only. Prover is not subject to headache, and never experienced anything like this. (*Ibid.*)

7. Dr. E. C. Price, æt. 43. In perfect health. Aug. 14th. Took two doses of 5 drops of 3rd cent. without effect. 17th, took 10 drops, on 18th 20, and later 50 drops. Had aching soreness in one or other knee under patella, and some transient pains elsewhere. Passed much water. On 19th took 10 drops of 3x at 9 a.m., and 30 drops at 8 p.m. 20th. Had rheumatic pain in right shoulder-joint nearly all day, and regarded it as an attack of rheumatism in the shoulder, having suffered with several attacks during the last 18 years, but they

* "During this proving" Dr. Hoyne notes "an acne, with which I had been troubled more or less for three years, disappeared."

never lasted less than three or four days, while this passed off suddenly in the e., like all the carbolic acid pains, which also come suddenly. 21st. Pain for some time inside knee-joint. 23rd. At 8.45 p.m. took 20 drops of 2x. About 10, severe bruised pain beneath left tendo Achillis, as if struck by a club; in a few minutes it disappeared for a short time, when he had a sharp pain in second joint of left middle finger; this pain was only momentary, when it went back (not less intensely) to the leg again. (*Amer. Observer*, viii, 148.)

8. Dr. LILIENTHAL, æt. 52. Sanguine temp. April 14th, at 1 p.m., took 12 drops of 1x in teaspoonful of water, and at 4 12 drops of a 1 to 20 solution. Besides symptoms of local irritation, became sleepy and chilly, with disinclination to mental effort, even reading; and had dull frontal headache, with feeling as if elastic band were drawn tightly across forehead, worse on l. side. On 15th, took, at 7 a.m., same dose as last, and at noon 12 drops of a solution of 1 to 25. In forenoon fulness felt all over head, with pain in forehead and occiput; there was also a sense of narrowness in chest, as if diaphragm oppressed lungs. Tired sensation in lumbar region, then dull aching there, increased on straightening trunk, and by jolting of driving, which also hurts abdominal parietes. Pain extends down back of thighs. Noon dose increased fulness of head, with which were vertigo, trembling, and tingling of feet; but all symptoms were relieved by a meal at 1 p.m., save frontal headache, and this passed off in e. For next 2 d. was irritable, head muddled, with sleepiness, mental and bodily laziness, and easily induced fatigue. On 18th had dull heavy pain in l. temple during d. On 19th frontal and lumbar pains recurred; could not fix attention; legs felt heavy as lead. These symptoms, with neuralgic pains in l. temple, continued till 22nd, and a burning feeling in stomach, which came on in afternoon of 15th, was felt all the while, though appetite and digestion were good. May 3rd. During day took three doses of 12 to 30 drops of 1st. Slight local symptoms, and some trace of left temporal neuralgia, were all that occurred. On 4th took 12 drops of 1x, which brought back all the head symptoms, with pronounced heat there; fresh air only relieved, "cooling heated brain." Reading was impossible, letters looking blurred and fading into one another. Symptoms diminished towards e., though he took 12 drops of 1st at 5 p.m.; but on retiring to bed, after smoking his usual pipe, he felt as if the tobacco had disagreed with him. Next d. head and chest were oppressed; thighs felt bruised, and back weak and sore; there was burning at stomach, and weight after food. May 6th. A fresh dose of 12 drops of 1st renewed symptoms, and proving was discontinued. (*Trans. of N. Y. Stat Hom. Soc.*, viii, 232.)

9. Mrs. S. A. F., M.D. May 7th. Two doses of 4 to 5 drops 1st brought on frontal symptoms as with last prover; and ano dose next day added frequent micturition. On 10th the same taken *in dosi refractâ* at intervals; and brought on transient (twice) in left ovary, and oppression of chest, with dull pain in *v* lobes of lungs. Next day there was a slight pustular eruption on side of face, great heat of body, and physical exhaustion. (*Ibid.*)

10. Mrs. C. L., M.D. Doses of 1st caused dull frontal headache and total loss of appetite.* (*Ibid.*)

11. Dr. C. H. HAESELER. On 21st June took two doses, first of 1 drop, second of 5 drops, of pure acid in glycerine and water. Next day took 10 drops, and on 23rd 20 drops. Each dose produced to a greater or less degree the features of acute dyspepsia, with head symptoms like those of No. 8, the sharp, darting neuralgic pains in the midst of the dull aching being very pronounced. (*Hahn. Monthly*, Dec., 1869.)

12. X. Y., a friend to whom Dr. H. gave 6 drops as an experiment, had similar symptoms. Headache was felt most over right eye; chest felt oppressed, as after excess in eating; was drowsy and nervous; and subsequently had pain in back and right side. (*Ibid.*)

13. Dr. H.'s daughter, æt. 11. Took 4 drops of the acid. Besides local burning and nausea, it caused severe headache, "as if somebody were jogging a sword in and out all around," much aggravated by noise and light. It lasted till evening of next day, at noon of which she was flurried and feverish, with pulse at 90, and pain in r. hypochondrium. On the day yet following she took a teaspoonful of 3x, when same symptoms recurred, headache being fixed over r. eye (as in No. 12); but all passed off after a quiet sleep. (*Ibid.*)

14. J. N. MITCHELL, M.D. Three days after application of strong acid to cavity of carious tooth became subject of slight but constant giddiness, followed by a similar dull pressure and pain in back of head and neck. After a week application was renewed daily for 10 d. or more, and symptoms then became much worse. There were also added —r. supra-orbital neuralgia; constant dark spot before l. eye; severe, band-like compression round head (especially felt in temples); sense at vertex as if brain were swashing about; coldness there in spots on stooping, with clammy sweat; cold sweat on head on least exertion; and tinnitus aurium, though hearing was unimpaired. Mind was unusually clear, but intellectual exertion increased pressure and pain in head, even to numbness. Giddiness was better while walking in open air. He was constantly heavy for sleep, but sleep was dreamful and unrefreshing. He frequently got into an absent-minded state, with starting and trembling on being spoken to. Appetite and digestion were good, and bowels regular, though sluggish. Abdomen always seemed distended with wind, but none could be passed; and there was frequent, but ineffectual desire for stool. Sexual organs weakened and relaxed, but nights much haunted with lascivious dreams and emissions.

These symptoms (with great weight on seventh cervical vertebra, which was tender) went on increasing during the use of the acid, but on stopping it, and clearing the cavity, began to diminish in a few h., and in three d. disappeared entirely with some bilious diarrhœa. An incautious renewal of the application some months after caused them to set in again, but they at once disappeared on its removal. (*Amer. Journ. of Hom. Mat. Med.*, N.S., i, 354.)

* They at the same time relieved temporarily a lumbo-sacral aching from which prover was rarely free. On 25th a dose of the 30th relieved this pain "like magic," and there was no recurrence of it to May 14th.

15. N. ROTHE took 1 grm. in 20 grms. of water, and perceived sharp but cooling taste similar to that of peppermint-oil, warmth in stomach, temporary fulness in head, eructations, and slight gastric catarrh lasting several d. (*Die Carbolsäure in der Medicin*, p. 7.)

16. From dose of 1 grm. diluted with water, DANION experienced eructations, feeling of warmth at epigastrium, and slight stupefaction, which last, after a dose of 2 grms., lasted for ½ h., with roaring in ears and formication in extremities. Four grms., taken in 3 doses, produced cramp in calves, fall in temperature of several tenths, and alkaline dark-brown urine. (*Recherches sur l'Acide phénique*, Strassb., 1869.)

17. C. A. NORTON, M.D., was exposed for 1 h. while writing to vapour of a strong solution. In ½ h. began to feel faint, especially at stomach. In 10 m. more head felt "inflated," the pressure from inside being greatest at temples; shaking head increased feeling. At end of h. faintness was so general that he desisted writing, and on rising found legs almost too weak for standing. The mind teemed with delightful ideas, but on attempting to express them in writing he found his arms too weak to trace a line. On passing to another room lost all consciousness of a body, but head seemed ten times its proper size. On lying down symptoms abated in order of their oncoming. Entering a meal-room shortly after could smell keenly everything there, however distant or stable, and on a subsequent visit to the water-closet was overpowered with the stench, which was nothing uncommon. Lay down and slept 2½ h., tossing about much while unconscious. Head now felt bruised and sore, and there was a deathly faintness at stomach, so that he could hardly get through undressing for bed. Next m. woke with feeling in head as if he had taken a large dose of opium, and with inclination to diarrhœa, which he found had been indulged involuntarily during n. It came to nothing now; but food seemed to cause nausea. Head and face were extremely sensitive to comb and towel in toilet, and jarring of a carriage in the forenoon was very distressing. On returning from drive bruised, sore feeling began in small of back and extended to hips. There was burning in rectum, and bowels felt as if filled with flatulence. No appetite for food. A tape-like and gluey stool was passed. In e. pain had become concentrated in r. thigh; it kept him awake in n., in m. went to foot, and then passed away. It was 3 d. before sensations in head and abdomen left him. Dr. N. has twice since experienced similar symptoms from carbolic acid vapour. (*Publications of Mass. Hom. Soc.*, iv, 285.)

18. Smell of acid while preparing solution caused, in Dr. W. M. WILLIAMSON, pain over r. eye, going off in open air; on later exposure to odour extending to temple, with sense of soreness in r. eyeball. Urine scanty and high-coloured. On another similar occasion same symptoms recurred, with pricking pains through glans penis and in urethra; straining in passing urine, and uncomfortable sensation for 2 h. afterwards. Five drops of solution taken subsequently internally caused supra-orbital pain slightly, but urinary disorder severely. (*Trans. of Penns. State Hom. Med. Soc.*, 1870—1, 180.)

19. T. C. DUNCAN, M.D. Nervo-bilious. Feb. 27th. Inhalation of vapour caused full feeling in frontal lobes of brain, increasing to

severe headache; great acuteness of sense of smell, and sensitiveness of eyes to light; slight nausea, with prostration; anorexia; great languor; numbness of skin of hands; symptoms increased in severity for 3 h., when a cup of tea dispersed them. He has repeatedly had this train of symptoms from simply smelling the acid. (As 1.)

20. Mrs. E. J. D. About ½ h. after smelling acid (5 p.m.) complained of severe headache with nausea; sense of smell exceedingly acute; no appetite for next meal. A cup of green tea somewhat relieved headache, but did not reduce the olfactory sensibility. The catamenia, which were present, became more copious, and next m. were still further increased and darker than usual, with headache and great nervous irritability; sense of smell continuing acute. By e. the symptoms had vanished. (*Ibid.*)

21. DÉCLAT (*Traité de l'Acide phénique*, Paris, 1854) observed slight headache after its use, lasting from 5 to 15 m., spreading over whole head, and returning every time drug was taken; in some persons most intense in frontal region, in others in occiput. After administration of acid in form of pills, NEUMANN observed heaviness and fulness of head, weakness of legs, dizziness, appearance of circles before eyes, horripilation, and profuse sweating. (LEWIN, *Incidental Effects of Drugs*, New York, 1882.)

II. *Poisonings.*—1. When a thin layer of the pure acid is painted on the skin, a pretty severe smarting is felt for about an hour. The epidermis wrinkles, and a white coating spreads over the part touched, and gradually disappears, being succeeded by a congestion which lasts 20 d. This presents all the characters of inflammation, but on tearing the raised epidermis no serosity flows out. The epidermis gradually exfoliates, leaving a brown stain for a long time. The whole exactly resembles a burn in the second degree, which does not go on to suppuration. (LEMAIRE, *de l'Acide phénique*, Paris, 1863.)

2. A curious local action of carbolic acid, to which attention was drawn almost simultaneously by Mr. Erasmus Wilson and by Dr. J. H. Bill, U.S.A., is the property it has when applied in concentrated form of causing very great local anæsthesia. The loss of feeling is not confined to the tissue killed by the drug, but extends some little distance inwards. (H. C. WOOD, *Therap.*, sub voce.)

3. Where poison comes in contact with mucous membrane, a white scab forms, thickness of which depends on concentration of acid. (BOEHM, Ziemssen's *Cyclopædia*, xvii, 525.)

4. The dark-green, and often almost black, colour of the urine after standing for some time, which often occurs when this poison is absorbed from the surface of a wound, is strikingly characteristic. It is seldom, yet sufficiently often, seen when the poison is taken internally. This symptom clearly depends on the presence in the urine of some product of the decomposition of carbolic acid, the chemical nature of which has not been discovered. E. Salkowsky, in commenting on this striking fact, inclines to the opinion that the decomposition occurs before the absorption of the carbolic acid, as it so rarely occurs from the internal use of this substance. (*Ibid.*)

5. Miss J., æt. 51, had elbow-joint excised Dec. 2nd, 1868, on

account of disease of cartilages. Wound was dressed with weak carbolic acid and water lotion (1 to 50), applied on a lint bandage covered with oiled silk, limb being supported by a leather splint. She rallied well after operation, and progressed favourably for first 72 h., when a shivering fit occurred; the tongue rapidly fouled, the pulse rising from 100 to 120, with a weak and fluttering beat, the skin becoming very cold and clammy; at the same time vomiting of a very uncontrollable nature began. Bowels had not acted since the operation. Her face became much pinched and anxious, her spirits being greatly depressed. Nothing came from the wound save a drop or two of sanious non-purulent discharge, its edges being very dry and glassy. So suspicious were the local and general symptoms that we were led to suspect pyæmia. Still there was no tendency to wandering, jaundice, or sweet breath, either now or at any other time. Poultices were now substituted for the lotion, and in the course of 40 hours actual pus was present in them, and the constitutional irritation was entirely removed, the sickness being the last to leave. Our patient continued to do well for a week, gradually improving up to Dec. 15th, when the carbolic lotion, same strength, was re-employed. Within 36 h. vomiting began again, accompanied by the same train of symptoms as on the previous occasion. The discharge, which was abundant and purulent on e. of 15th, became scanty and rusty by m. of 17th; the urging, if possible, was worse than before. Now on the 5th d. after the operation Miss J. seemed to be rapidly sinking from the exhaustion caused by the violent and ceaseless urging. Her pulse that day was 130 to 140 per m. and very thready; the tongue was covered with a thick brown coat; the mental faculties perfectly clear. The bowels acted after an enema; urine scanty, loaded with lithates, but not dark or carbonaceous looking. That same day (Dec. 7th) the carbolic dressings were changed for linseed-meal poultices, and this had not been done many hours before a change for the better showed itself. Poultices were again substituted on the 18th, when we almost had given up hoping to save the patient's life. She was entirely supported at this time by enemata, her stomach not being able to retain even a little beef tea or brandy-and-soda. Two or three d. after the change in the application healthy pus in fair quantity was coming from the elbow; and with the exception of great prostration the evil symptoms had all abated. Our suspicions were now awakened as to the existence of some undoubted relation between the above symptoms and the nature of the dressing; yet our faith in carbolic acid was so strong that we hardly dared suspect it as the cause. The patient went on very well with the use of poultices up to Dec. 27th, when, for the last time and with a similar result, the carbolic lotion was resumed. The wound was now nearly healed; two sinuses which had formed we thought to benefit by a bi-daily injection of the foregoing lotion. Fortunately the first appearance of suspicious signs (*i.e.* slight sickness after food) found us on the alert, and the injections were at once discontinued, the mischief being thereby nipped in the bud. For the next 3 w. warm-water dressing constituted the sole treatment, and the patient left for her home on Jan. 22nd, 1869, quite cured, with an arm which has since

grammes of pure carbolic acid). Immediately vertigo, followed 10 m. later by absolute loss of consciousness with cyanosis of face. 1½ h. after poison was taken there was still coma with relaxed limbs; no convulsions; pupils extremely contracted and immoveable; cold sweat; respiration slow, irregular, with tracheal râle; countenance pale and cyanosed; vomiting. Pulse very quick, regular, but sometimes extinct during inspiration. The stomach was washed out, but she seemed rather worse afterwards. The urine passed 1 h. after the poisoning was normal, but that passed 15 m. later was the colour of blood. The microscope showed no red corpuscles, but the spectroscope showed the bands of oxyhæmoglobin. 1½ h. after the poisoning temperature in vagina was as low as 34·4° C. The tracheal râle increased, mucus was continually ejected from the mouth and nose; the tongue was retracted. She gradually recovered, but 8 h. after the poisoning the temperature was higher than normal, there were pains in throat and stomach, extreme hoarseness, bilious vomiting, urine had to be drawn off, no more hæmoglobin, but some albumen, granular casts, some red globules and renal epithelium. The d. after poisoning she had circumscribed pneumonia at base of r. lung. She left the hospital on the 8th d., when the vocal cords were still red and swollen, and the mucous membrane of the larynx injected; the urine still albuminous, contains granular and hyaline casts. (*Rev. des Sc. Méd.*, Oct. 15th, 1883.)

10. A man, æt. 30, given to drink, drank off a glassful of carbolic acid in mistake for whisky. On his mouth and throat burning he gargled with water and went to a public-house. There he felt ill and did not know what happened. Half an h. after the accident he was found stretched unconscious, insensible to all excitations, skin cyanosed, limbs cold, relaxed, pupils contracted and immoveable; respiration laboured and jerky; mouth exuding bloody slime; pulse small, scarcely perceptible. Chest full of large mucous râles. He was bled, sinapisms applied, and friction to the limbs. Cold compresses to chest and benzoic acid internally. After 12 h. consciousness returned. Cyanosis diminished, respiration easy, no râles. Burning pain in mouth, throat, and pit of stomach. Copious vomiting. Urine black as ink. The 3rd d. he still vomits; skin and mucous membrane of throat and mouth are still livid. The pain of the burning still severe. The 4th d. vomiting ceased; tissues less deeply coloured, now of a dull brown. Pain in chest, especially on r. side; rusty expectoration. The 5th d. urine clear. Fever, bloody expectoration, violent delirium. Dulness and bronchial breathing on the r. side of back below the angle of the scapula. Died on 6th d. *Post-mortem.*—Labial and buccal mucous membrane of a grey colour like lead. Pharyngeal mucous membrane bright red, swollen, softened, and covered with patches of exudation. Bright injection of œsophagus, which is eroded in places. Posterior wall of stomach marbled with ecchymoses, but no loss of the substance of the gastric mucous membrane. Intestines normal. Liver large and fatty. Spleen rather big. Right kidney hypertrophied and inflamed. Red hepatisation of middle and lower lobes of right lung. (*Ibid.*)

11. A man, æt. 37, had daily injections of a 2 per cent. solution of carbolic acid for a fistulous empyema. Though the injections imme-

become fairly useful. (LIGHTFOOT, *Brit. Med. Journ.*, 1870, i, 333.)

6. LÜCKE (*Berl. klin. Woch.*, 1878, p. 248) observed a nephritis due to action of carbolic acid, which disappeared when use of drug was stopped. EDWARDS (*Virchow-Hirsch's Jahresber.*, 1869, i, 349), after introduction into vagina of tampons of cotton medicated with acid, saw singultus, nausea, chilliness, and anasarca, with diminution or suppression of urine, delirium, and, finally, death. He attributes these phenomena to an acute nephritis, with uræmia, produced by the drug. E. WAGNER (*Deutsch. Arch. f. klin. Med.*, 1880, p. 529) studied changes in kidneys with care. Carbolic acid was applied in a case of gangrene of leg. The next day, urine contained casts of medium width, the majority hyaline, and a few fatty, some studded with red blood-corpuscles or renal epithelium. After death, microscopic examination showed that uriniferous tubules were dilated, their epithelia large and very fatty, projecting far into their cavities, which contained numerous masses of protoplasm and jagged shining bodies. (LEWIN, *op. cit.*)

7. J. M., æt. 32, swallowed at 10 a.m. a bottle of carbolic disinfectant. He was seized immediately with nausea, cold sweats, stupor, and loss of consciousness. At 11.30 he was comatose, insensible to all stimuli, breathing panting and tracheal. Death appeared imminent; but at 5 p.m. he still lived, and warmth had returned. There was, however, still coma and entire reflex paralysis; conjunctiva insensible, pupils very contracted. Respirations frequent (48) and stertorous, tracheal râle, mucus from mouth. Pulse very rapid (120) and small; heart beat convulsively with some force. No urine since morning. Catheter brought away a glass of limpid non-flocculent urine, of yellow colour and violet gleam, with some oily matter floating on it and strong odour of acid. A small bleeding being practised, blood was found black, thick, without shimmer, of peculiar brown colour by transmitted light, and smelling as urine. The clot was soft, without air, diffluent; had not contracted by next day. Died in asphyxia 2 h. later. P.M.—In mouth and throat dryness only. Œsophagus a little red and swollen, as also gastric mucous membrane, but no lesion anywhere. Kidneys very congested. Under capsule patches of sanguineous effusion. On section, hæmorrhagic spots in cortical region. Under microscope walls of tubules sound, but epithelium fatty and completely degenerated, as in phosphoric poisoning. (Albumen subsequently found in urine drawn off.) Lungs, heart, and brain sound, liver congested and blackish. (RENDU, *Journ. de Pharm. et de Chim.*, 1871, p. 456.)

8. In a case of poisoning by the acid occurring in Middlesex Hospital, severe bronchitis ensued, and the patient, æt. 3½, was during his recovery extremely restless, and had a vacuous, almost idiotic expression. The reporter states that bronchitis has supervened in several instances of this poisoning admitted into the hospital, and refers to fatal cases of pneumonia induced by the acid. (*Lancet*, October 18th, 1884.)

9. A woman, æt. 30, swallowed 4 c.c. of carbolised alcohol (= 13

grammes of pure carbolic acid). Immediately vertigo, followed 10 m. later by absolute loss of consciousness with cyanosis of face. 1½ h. after poison was taken there was still coma with relaxed limbs; no convulsions; pupils extremely contracted and immoveable; cold sweat; respiration slow, irregular, with tracheal râle; countenance pale and cyanosed; vomiting. Pulse very quick, regular, but sometimes extinct during inspiration. The stomach was washed out, but she seemed rather worse afterwards. The urine passed 1 h. after the poisoning was normal, but that passed 15 m. later was the colour of blood. The microscope showed no red corpuscles, but the spectroscope showed the bands of oxyhæmoglobin. 1½ h. after the poisoning temperature in vagina was as low as 34·4° C. The tracheal râle increased, mucus was continually ejected from the mouth and nose; the tongue was retracted. She gradually recovered, but 8 h. after the poisoning the temperature was higher than normal, there were pains in throat and stomach, extreme hoarseness, bilious vomiting, urine had to be drawn off, no more hæmoglobin, but some albumen, granular casts, some red globules and renal epithelium. The d. after poisoning she had circumscribed pneumonia at base of r. lung. She left the hospital on the 8th d., when the vocal cords were still red and swollen, and the mucous membrane of the larynx injected; the urine still albuminous, contains granular and hyaline casts. (*Rev. des Sc. Méd.*, Oct. 15th, 1883.)

10. A man, æt. 30, given to drink, drank off a glassful of carbolic acid in mistake for whisky. On his mouth and throat burning he gargled with water and went to a public-house. There he felt ill and did not know what happened. Half an h. after the accident he was found stretched unconscious, insensible to all excitations, skin cyanosed, limbs cold, relaxed, pupils contracted and immoveable; respiration laboured and jerky; mouth exuding bloody slime; pulse small, scarcely perceptible. Chest full of large mucous râles. He was bled, sinapisms applied, and friction to the limbs. Cold compresses to chest and benzoic acid internally. After 12 h. consciousness returned. Cyanosis diminished, respiration easy, no râles. Burning pain in mouth, throat, and pit of stomach. Copious vomiting. Urine black as ink. The 3rd d. he still vomits; skin and mucous membrane of throat and mouth are still livid. The pain of the burning still severe. The 4th d. vomiting ceased; tissues less deeply coloured, now of a dull brown. Pain in chest, especially on r. side; rusty expectoration. The 5th d. urine clear. Fever, bloody expectoration, violent delirium. Dulness and bronchial breathing on the r. side of back below the angle of the scapula. Died on 6th d. *Post-mortem.*—Labial and buccal mucous membrane of a grey colour like lead. Pharyngeal mucous membrane bright red, swollen, softened, and covered with patches of exudation. Bright injection of œsophagus, which is eroded in places. Posterior wall of stomach marbled with ecchymoses, but no loss of the substance of the gastric mucous membrane. Intestines normal. Liver large and fatty. Spleen rather big. Right kidney hypertrophied and inflamed. Red hepatisation of middle and lower lobes of right lung. (*Ibid.*)

11. A man, æt. 37, had daily injections of a 2 per cent. solution of carbolic acid for a fistulous empyema. Though the injections imme-

diately returned, he always complained of sweetish taste on the tongue, slight giddiness, and sometimes headache that lasted several h. Hoping to produce a quicker cure, his wife injected a double quantity of a 3 per cent. solution. Before the operation was at an end the man uttered a cry and tumbled off his chair unconscious. Stertor, agitation, groaning, violent nausea, flaccidity of the limbs except some transient convulsions in the r. arm, pupils dilated and insensible; respiration irregular, laboured, noisy during inspiration; pulse not quick, very compressible, and occasionally intermittent; sensibility almost entirely lost. At end of 2 h. he recovered consciousness, but remembered nothing of what had passed. He complained of horrible headache, nausea, soon followed by vomiting. The vision of both eyes was entirely lost. The ophthalmoscope shows very indistinct outline of the papillæ, especially the r. The following m. the nausea was gone, and the patient perceived the dawn of day. Some h. later was able to see the outline of objects in his room. The 20th d. there was no longer any affection of the sight; r. eye recovered itself more slowly than l. He had still heaviness of head, and he vomited when he got up. (*Ibid.*)

12. In a case in which a few grains of the acid in water were injected into rectum of girl of 5½, for thread-worms, with unconsciousness, slight cyanosis, complete anæsthesia, and general muscular relaxation, strong trismus was present. (SCHMIDT's *Jahrb.*, vol. 198, p. 27.)

III. *Experiments on animals.*—1. There is a very considerable discrepancy between the action of the poison on animals and in human beings. In the former there occur unmistakeable symptoms of irritation of the medulla oblongata and of the spinal cord, which have as yet never been witnessed in human beings. (BOEHM, *op. cit.*)

2. In NEUMANN's experiments the general symptoms produced were tolerably constant in the different classes of animals; paralysis commencing in the hinder extremities and gradually spreading upwards, spasms of all the muscles, dilatation of the pupil, oppressed respiration, emaciation, diarrhœa, and death in convulsions. (*Ueber die Wirkung der Carbolsäure, &c*, Wien, 1870.)

3. HUSEMANN and UMMETHUN (*Deutsche Klinik*, 1870-1) and E. SALKOWSKY (*Pflueger's Archiv*, v, 1872) have carefully investigated the general symptoms of poisoning which follow the absorption of this poison in animals.

a. In frogs, Salkowsky observed, some time after the poisoning, consecutive to a stage of more or less paresis, clonic convulsions in the extremities, gradually increasing in severity, like those in strychnia poisoning, lasting for hours at a time. He also verified analogous affections in rabbits, in which what at first were only general muscular tremors became general convulsions. The occurrence of these spasms in various animals is confirmed by Husemann and Ummethun. Salkowsky refers their origin to the spinal cord, as they still happen when the brain and medulla oblongata are severed from the cord, and also when the arteries conveying blood to the limbs are ligatured. It could not therefore be said that the convulsions were due to asphyxia.

b. The disorders of respiration consist in a very considerable

grammes of pure carbolic acid). Immediately vertigo, followed 10 m. later by absolute loss of consciousness with cyanosis of face. 1½ h. after poison was taken there was still coma with relaxed limbs; no convulsions; pupils extremely contracted and immoveable; cold sweat; respiration slow, irregular, with tracheal râle; countenance pale and cyanosed; vomiting. Pulse very quick, regular, but sometimes extinct during inspiration. The stomach was washed out, but she seemed rather worse afterwards. The urine passed 1 h. after the poisoning was normal, but that passed 15 m. later was the colour of blood. The microscope showed no red corpuscles, but the spectroscope showed the bands of oxyhæmoglobin. 1½ h. after the poisoning temperature in vagina was as low as 34·4° C. The tracheal râle increased, mucus was continually ejected from the mouth and nose; the tongue was retracted. She gradually recovered, but 8 h. after the poisoning the temperature was higher than normal, there were pains in throat and stomach, extreme hoarseness, bilious vomiting, urine had to be drawn off, no more hæmoglobin, but some albumen, granular casts, some red globules and renal epithelium. The d. after poisoning she had circumscribed pneumonia at base of r. lung. She left the hospital on the 8th d., when the vocal cords were still red and swollen, and the mucous membrane of the larynx injected; the urine still albuminous, contains granular and hyaline casts. (*Rev. des Sc. Méd.*, Oct. 15th, 1883.)

10. A man, æt. 30, given to drink, drank off a glassful of carbolic acid in mistake for whisky. On his mouth and throat burning he gargled with water and went to a public-house. There he felt ill and did not know what happened. Half an h. after the accident he was found stretched unconscious, insensible to all excitations, skin cyanosed, limbs cold, relaxed, pupils contracted and immoveable; respiration laboured and jerky; mouth exuding bloody slime; pulse small, scarcely perceptible. Chest full of large mucous râles. He was bled, sinapisms applied, and friction to the limbs. Cold compresses to chest and benzoic acid internally. After 12 h. consciousness returned. Cyanosis diminished, respiration easy, no râles. Burning pain in mouth, throat, and pit of stomach. Copious vomiting. Urine black as ink. The 3rd d. he still vomits; skin and mucous membrane of throat and mouth are still livid. The pain of the burning still severe. The 4th d. vomiting ceased; tissues less deeply coloured, now of a dull brown. Pain in chest, especially on r. side; rusty expectoration. The 5th d. urine clear. Fever, bloody expectoration, violent delirium. Dulness and bronchial breathing on the r. side of back below the angle of the scapula. Died on 6th d. *Post-mortem.*—Labial and buccal mucous membrane of a grey colour like lead. Pharyngeal mucous membrane bright red, swollen, softened, and covered with patches of exudation. Bright injection of œsophagus, which is eroded in places. Posterior wall of stomach marbled with ecchymoses, but no loss of the substance of the gastric mucous membrane. Intestines normal. Liver large and fatty. Spleen rather big. Right kidney hypertrophied and inflamed. Red hepatisation of middle and lower lobes of right lung. (*Ibid.*)

11. A man, æt. 37, had daily injections of a 2 per cent. solution of carbolic acid for a fistulous empyema. Though the injections imme-

grammes of pure carbolic acid). Immediately vertigo, followed 10 m later by absolute loss of consciousness with cyanosis of face. 1½ h. afte poison was taken there was still coma with relaxed limbs; no convulsions; pupils extremely contracted and immoveable; cold sweat; respiration slow, irregular, with tracheal râle; countenance pale and cyanosed; vomiting. Pulse very quick, regular, but sometimes extinct during inspiration. The stomach was washed out, but she seemed rather worse afterwards. The urine passed 1 h. after the poisoning was normal, but that passed 15 m. later was the colour of blood. The microscope showed no red corpuscles, but the spectroscope showed the bands of oxyhæmoglobin. 1½ h. after the poisoning temperature in vagina was as low as 34·4° C. The tracheal râle increased, mucus was continually ejected from the mouth and nose; the tongue was retracted. She gradually recovered, but 8 h. after the poisoning the temperature was higher than normal, there were pains in throat and stomach, extreme hoarseness, bilious vomiting, urine had to be drawn off, no more hæmoglobin, but some albumen, granular casts, some red globules and renal epithelium. The d. after poisoning she had circumscribed pneumonia at base of r. lung. She left the hospital on the 8th d., when the vocal cords were still red and swollen, and the mucous membrane of the larynx injected; the urine still albuminous, contains granular and hyaline casts. (*Rev. des Sc. Méd.*, Oct. 15th, 1883.)

10. A man, æt. 30, given to drink, drank off a glassful of carbolic acid in mistake for whisky. On his mouth and throat burning he gargled with water and went to a public-house. There he felt ill and did not know what happened. Half an h. after the accident he was found stretched unconscious, insensible to all excitations, skin cyanosed, limbs cold, relaxed, pupils contracted and immoveable; respiration laboured and jerky; mouth exuding bloody slime; pulse small, scarcely perceptible. Chest full of large mucous râles. He was bled, sinapisms applied, and friction to the limbs. Cold compresses to chest and benzoic acid internally. After 12 h. consciousness returned. Cyanosis diminished, respiration easy, no râles. Burning pain in mouth, throat, and pit of stomach. Copious vomiting. Urine black as ink. The 3rd d. he still vomits; skin and mucous membrane of throat and mouth are still livid. The pain of the burning still severe. The 4th d. vomiting ceased; tissues less deeply coloured, now of a dull brown. Pain in chest, especially on r. side; rusty expectoration. The 5th d. urine clear. Fever, bloody expectoration, violent delirium. Dulness and bronchial breathing on the r. side of back below the angle of the scapula. Died on 6th d. *Post-mortem.*—Labial and buccal mucous membrane of a grey colour like lead. Pharyngeal mucous membrane bright red, swollen, softened, and covered with patches of exudation. Bright injection of œsophagus, which is eroded in places. Posterior wall of stomach marbled with ecchymoses, but no loss of the substance of the gastric mucous membrane. Intestines normal. Liver large and fatty. Spleen rather big. Right kidney hypertrophied and inflamed. Red hepatisation of middle and lower lobes of right lung. (*Ibid.*)

11. A man, æt. 37, had daily injections of a 2 per cent. solution of carbolic acid for a fistulous empyema. Though the i[illegible]s imme-

increase of frequency of breathing, and in its becoming very superficial. Fatal doses bring on dyspnœa at the last, and manifestly lead to death by paralysis of respiration. The primary acceleration of breathing is not entirely prevented by section of the vagus, although this operation has unmistakeable effect upon it. On the other hand, carbolic acid is able to increase the number of respirations in an animal whose vagi have been previously divided. Salkowsky therefore believes that this poison not only affects the respiratory nerve-centres, but also excites the pulmonary terminations of the vagus.

c. The organs of circulation are less affected by carbolic acid. The frequency of the beats in the frog's heart gradually diminishes to about half, while the convulsions go on increasing. (BOEHM, *loc. cit.*)

4. *a.* Dr. Ernest LABÉE (*Arch. Gén.*, 6e ser., xviii, 451) agrees with Salkowsky in regarding the convulsions as of central origin, but differs as to the particular centres affected. He found that the convulsions did not occur if the cord or medulla had been previously divided, and that destruction of the whole encephalon had a similar result; but that if only the cerebral hemispheres and the optic lobes were removed, the convulsive phenomena developed in their usual manner. Admitting the truth of these asserted facts, the conclusion is inevitable that the convulsions produced by carbolic acid originate at the base of the brain, and are epileptiform.

The experiments of the two investigators are, with our present light, irreconcilable; but it seems to me that the results of Labée are the most probable. The experiments of Salkowsky are insufficient to carry complete conviction: indeed, he states only that convulsive movements were present to some extent after section of the cord. Further, according to his own researches, the nerves and muscles are not seriously affected by the poisoning; and, this being so, the coincidence of spinal convulsions and of paralysis is apparently inexplicable, and seems to demand the consentaneous existence of an exalted and a depressed state of the spinal ganglia.

b. According to Labée and to Salkowsky, in acute poisoning the heart is found pulsating regularly directly after death, but is finally arrested in diastole; and in slow poisoning death may be immediately produced by diastolic arrest. Salkowsky asserts that the rapidity of the circulation in a frog's web can with the microscope be seen to be at first increased by the hypodermic injection of the acid. Hoppe-Seyler found that the arterial pressure did not vary much under the action of the poison until the convulsions came on.

c. Post-mortem examinations of animals killed by carbolic acid have yielded varying results. In Lemaire's investigations, intense injection of the alimentary [illegible]ded in places. Po[illegible] was observed. Prof. Bruckmüller found the ce[illegible] but no loss of the [illegible]idneys in a state of fatty degeneration. This pro[illegible]stines normal. L[illegible]gly was the counterpart of

* Dr. Wood adds:—"[illegible]y hypertrophied [illegible] and purulent inflammation of the bronchial tubes, with a[illegible]er lobes of right lu[illegible] pneumonia." These phenomena, however, occurred only i[illegible]37, had daily inje[illegible] experimented on, and Lemaire justly infers that they must [illegible]fore the trials began. Another, already emphysematous, had [illegible] fistulous empye[illegible] [illegible]ongestion; but the air passages were sound. —EDS.

the changes in phosphorus-poisoning, was always more advanced in the kidneys than in the liver. Neumann states that it was found in a number of autopsies, and is a constant phenomenon; but Salkowsky was unable to find it in a number of examinations. (H. C. WOOD, *Therap.*, sub voce.)

ACIDUM CHROMICUM. See CHROMIUM.

ACIDUM CHRYSOPHANICUM. See RHEUM.

ACIDUM CITRICUM.

(Including *Citrus Limonum*, the lemon.*)

Citric acid. Obtained from lemon-juice, of which it is acid principle.

I. *Provings.*—1. Dr. G. O. REES gave healthy man ʒj of lemon-juice 3 times daily for 3 d. Pulse, which was naturally 75, and full, after 5 doses was 70, and much weaker and more compressible; therewith feeling of general depression. On 3rd d. pulse 66, and still weaker. Urine was always acid, and natural in quantity till 3rd d., when it increased somewhat: sp. gr. then 1017, lithic acid deficient. (*Edinb. Med. and Surg. Journ.*, i, 241.)

2. When given in daily doses of ʒxij lemon-juice temporarily causes an excessive acidity of the urine, and gives a deposit of free lithic acid, which is the very opposite effect to that produced by the citrate of potash and other vegetable acid salts. (BENCE JONES, *Med. Times and Gaz.*, 1854, ii, 407.)

II. *Poisonings.*—1. During a residence of twenty years in the West Indies I have only seen one case of scurvy, and that case was decidedly brought on by the excessive use of citric acid, which an American gentleman had been recommended to use as a preventive against the yellow fever. (W. STEVENS, *On the Blood*, p. 451.)

2. KLUSEMANN observed three cases of hæmorrhage, followed by death, apparently resulting from large use of lemon-juice in diseases not naturally tending to such events. The hæmorrhage was in two cases from the lungs, in one from the bowels. (SCHMIDT'S *Jahrbücher*, lxxiv, 159.)

III. *Experiments on animals.*—1. Orfila ranks citric acid with the irritant poisons. With ʒss Mitscherlich killed a rabbit in 20 m.; ʒj did not kill a larger animal, but ʒij killed in 27 m.—some h. The animals showed the strong action of the poison upon the spinal cord. There was spasm of the muscles of the back, of respiratory muscles and masseters; often opisthotonos. Sensibility was much diminished, and heart's impulse enfeebled. On examination no inflammatory appearances were observed in stomach or bowels. The mucous membrane was uninjected, but softened in spots. The large external veins were filled with fluid blood, and the blood flowed easily from a vein when opened. The blood itself was very thin, and coagulated slightly, if at all. These conclusions agree with those obtained by Schroff. (STILLÉ, *op. cit.*, sub voce.)

---

* "Dr. H. Bence Jones has shown that ʒj of lemon-juice contains gr. 27—28 of citric acid, and only gr. ¾ of potash; so that for all practical purposes it may be considered a solution of free citric acid." (*Stillé.*)

ACIDUM FLUORICUM.

Hydrofluoric acid, HFl. Product of action of sulphuric acid on fluor spar (fluoride of calcium).

I. *Provings.*—1. *a.* Dr. HERING smelt at acid, 5 p.m. It appeared to him to proceed from throat to head. He felt as if he was to be struck with apoplexy, a kind of determination of blood to head and loss of consciousness, he could not recollect where he was. There followed sore throat, with difficult deglutition; his throat, as far as below larynx, felt so sore that bread, though masticated very thoroughly, could not be swallowed without the greatest pain. This lasted till next m. after breakfast, before which there was hawking up of much phlegm, mixed with some blood.

b. Took a teaspoonful of 3rd dil. one afternoon. Immediately sensation of warmth on lips and greasy feeling in mouth. In 5 m. headache in upper forehead and vertex towards r.; in 10 m. slight feeling of nausea and vertigo; in 15 m. painful sensibility of r. upper jaw, reflected, as it were, in lower. 1 h. after had come dulness towards r. in occiput; violent jerking in interior behind and above r. eyebrow, in bone; some pain in abdomen after a meal of fish and water-melon, which was quite unusual; and burning around first bone of r. middle finger, with itching and stinging in skin. From 1 to 2 h. after supervened pain in larynx, as if in cartilage, inducing swallowing; slight numbness of r. joint of lower jaw, a continual sensation of warmth, and as if it would begin to pain; burning pain on outside of r. lower jaw on small spot near 1st and 2nd molar; burning pricking pain in l. shoulder-blade; and pain in l. arm above elbow. In e. pain in r. instep, followed by slight numbness of r. thigh, only when crossing legs; painful determination of blood to forehead, like a quick jerk, on first walking after standing, not after sitting; itching, inducing him to scratch, on both upper eyelids; sensation of fulness in both spermatic cords; creeping and severe itching on r. shoulder, sometimes shifting to l.; and general heat after little exercise (in n. special warmth in abdomen, with pressure towards bladder). That e. also, and following m., sensation almost like rush of blood, but rather as if of nervous seat, somewhat resembling numbness or burning, first in forehead, afterwards in upper and lower jaw of same side, in lower part of occiput, in bladder, and various other places.* A cold bath in the morning was more than ordinarily agreeable. In forenoon of this (2nd) d. he had, whilst sitting, a frequent sensation of a general shaking, with a dull pressure and compression in occiput, particularly towards night, with continual internal sensations of numbness in l. forearm, and severe pricking in it whilst stretching it. The l. hand also felt numb (was "asleep") in m., and remained so the whole forenoon. In the course of it came a disposition to anxious ideas, frequently to such a degree that perspiration broke out; sensation in r. ear as if a singing would commence there; an almost painful electric jerk along l. radius to thumb, which moves involuntarily; in fleshy part of l. thumb violent burning stitch, often returning and passing out at the end, and beneath the nail painful sensation, as if something was gradually working its way out; in the l. little finger a slowly jerking, repeated burning. During 2nd and 3rd d. there was decidedly less voiding of urine. On 3rd d. no stool; at 10 a.m. on the 4th indefinite (*sic*) desire, and pappy evacuation. On this and the following d. both hands were constantly red (on 4th d. full and warm also, and as if mottled), and from 10 to 11 p.m. there was violent pricking-itching on detached spots, mostly on l. side, particularly on side of chest towards back, and on thigh. In e. this itching affected several cicatrices he had, dating from 32 to 2 years back, and all on l. side; next m. they were red round their edges, and occupied here and there with itching vesicles. Those of more ancient date had larger vesicles; the later ones were filled with very small pimples, but only on cicatricial tissue, not on

* This was also experienced after the 6th and 30th dils.

surrounding skin. During 4th d. contraction in some muscles of neck on l. side and towards shoulder, during forenoon, at rest and whilst rising, which after some resting gradually subsided. The pain seemed to shift from one set of muscles to another, but was always in more than one. The omohyoideus was markedly affected. He had also deep-seated pain in back, below point of shoulder-blade, more towards l., felt most in sitting posture, particularly whilst riding (also felt on 9th d.); pricking, burning itching near coccyx, towards r.; violent itching on different spots, especially back, increasing towards n., on this and the next d.; on back and l. hip groups of small red pimples appear. On 5th d., in m., lower incisor teeth have sensation of roughness, as if broken, and tongue feels painful on touching them (this continued several days); there was more urination, even twice in night, which is quite unusual with him, and more thirst; he had pain in l. index finger, as if in bone, now and then the whole finger being painful internally, especially in e., when also violent itching occurred, and small vesicles appeared on r. index; at same time, on closing eyes firmly, he observed a large bright ring, which quickly vanished. On 6th d. nothing fresh was noted; but on 7th (and following days) he had oppression in upper part of chest, not relieved by deep inspiration. On 8th and 9th, there was, during forenoon, in the room and open air, a headache, a partial fulness, as if something were lying on a spot in l. parietal bone. On 9th d. it seemed in m. as if his countenance had become all at once wrinkled and old. For the first time he felt desire to scratch the head, without any actual itching; and next m. there was a great falling off of the hair. Deep in the bones, superior and posterior to l. eye, there was occasional soreness; and behind eye, towards temple, there had previously been in l. nostril and forehead a pain, seemingly in bone, as if very deeply in interior something sharp-pointed was moved about. Later same pain occurred in posterior part of r. eye, extending very far into upper jaw. There was also difficulty of breathing, seemingly from an impediment in region of pit of throat and upper chest; at same time aching pimples appeared on the back, and there was pain in chest below point of scapula. On this d. and the following it is noted that the left leg readily went to sleep. On 10th d. he had during his walk a very severe itching on throat and chest. Also in both joints of the jaws (worse in l.), painful spasmodic contraction (had had same sensation occasionally before); he often breathed deeply, as if breast within and below was full, in forenoon while sitting and writing; and more itching and fresh pimples came on the back. On this d. and the following, in lower part of entrance to fauces, towards l. side, was a raw feeling, which, though little painful, he apprehended might prove serious. On 12th d. violent itching at l. inner canthus of eye, which caused him to scratch very quickly and forcibly, and itching above the anus, sudden and most violent, often returning for some days later. In e. itching on r. nipple and around it; the nipple next morning much larger, redder, and the areola darker. A thin brownish crust then formed on the areola. On 13th d. he first noticed several small light carmine-red round elevated blood-vesicles, resembling little flesh warts; they are very soft and compressible, and by a strong and steady pressure the blood disappears, but immediately returns again. The largest is the size of a hemp-seed, the smaller ones like millet seeds; some are still smaller, but they are very perceptible as light red enlargements of the capillaries, raising up the cuticle. They lie below the right nipple and on the opposing surface of the right arm. Three weeks later some of the smaller ones had disappeared. The larger had become darker, somewhat resembling nævi materni; some are larger than before. After three months they are paler. They made their appearance and remained without any itching. On 15th d. is noted aversion to coffee, and on 15th and 16th a very acrid and strong odour of the urine. On latter day a small pimple appeared on the right side of the face, and similar ones occurred there 5 weeks afterwards.

Besides this daily record, it seems that several times during the first days, while considering what might happen, he got into a most ungovernable rage, but only in his thoughts. During first week, he had after 10 a.m. a kind of shaking in the head, particularly in the back part of it, and more towards r., when first sitting, during each quick, short movement, on rising and turning, and during walking; also frequent itching in eyes, making him scratch, dull pains in region of bladder, more easily controlled and gradually diminishing sexual passion, and pain in back, sometimes high up near shoulder-blades, sometimes deeply seated, as it were in region of kidneys. Every forenoon about 10 to 12 he became sleepy and tired. During first

two weeks there was heat in face, and desire to bathe it with cold water, which was very grateful; and he became sleepy earlier in the evening. In 3rd week he had in e. after retiring a jerking light before eyes, crossing itself like lightning. During 4th week he was very irritable towards people, even to the greatest hatred, which he did not hesitate to give vent to in words; but as soon as he saw them everything was forgotten, and he had an entirely different opinion of them. He also had now and then in the evenings of this and the following weeks a pain resembling a contusion in the ends of the second fingers, as it were in the bones. As far as the 6th week, his urine frequently smelled very offensively; and at this period wheezing during respiration was noticed, rather by others than himself; though while taking his afternoon siesta, he found he had to bend backwards to draw a full breath. Still during this week vesicles arose, larger and smaller, in groups, with very sensitive itching, on ulnar side of r. thumb and radial side of the neighbouring index, leaving behind them dry scurfy spots. Even in 7th week he was reminded of the drug by sensations as of a hair along the back of the l. little finger, so that he repeatedly looked to see if one were not there.

The following symptoms also are referred to the 3rd, but without note of time: —Great disposition, when alone, to repulsive fantastic imaginations, particularly with regard to persons with whom he stands in near relations, or with whom he is connected. Indifferent, showing no interest in any occupation. Sensation as if dangers menaced him, but without being afraid, particularly during the pressure in the occiput, the staggering, the pain in the bladder, &c. Sudden attacks of coryza, as suddenly disappearing (also after 6th and 30th).

c. The 6th and 30th were also proved, in what manner is not stated. The following symptoms are recorded as observed after the 6th:—In e. he is very discontented, and looks at everything in the worst light; in the morning, after a restless night, his temper is very cheerful and joyous. On making his notes he mistakes right and left, a circumstance that does not easily happen to him—2nd d. Dulness and painful tension in head towards night, 2nd d. In e., after animated conversation, heat in face and headache, like a pressing and forcing deep interiorly towards l.; appearing at times and subsiding again; it then passes to l. upper jaw, as if teeth ached, even at those places where roots of teeth had been extracted a year ago—2nd d. In chewing, taste like ink; seems to proceed from a lower tooth on l. side—2nd d. With diarrhœa, pain more particularly in region of navel—several h. He feels as if the wind were retained in the anus. Before and after urination, pain in lower part of bladder, there is also pain on pressure—1st and 2nd d. Urination more frequent—several d. A violent, slightly burning, quick nervous pain proceeds from region of bladder down to right thigh, while lying in bed—1st d. Burning, shooting pain, as if it were in nerve, from r. hip downwards, particularly on inside of knee; further down less distinctly—2nd d. Violent itchings, and small pimples here and there.

d. From the 30th, the following symptoms had been verified by lower attenuations:—With his usual good appetite, he nevertheless is soon satisfied. The evacuation becomes protracted, insufficient, and lumpy. On awaking, r. upper arm and shoulder feel bruised and benumbed, after lying on l. side—several d. (*Materia Medica of American Provings.*)

2. Dr. Esrey, after taking 1st, had sickness of stomach from 3 to 4 h.; after 2nd, had shooting pain in l. forehead, increased lachrymation, soreness of wrists and pain in corns. (*Ibid.*)

3. Dr. Freitag took 30th, followed by 6th. From latter attenuation are reported—Headache in forehead and temples. Behind r. ear a pain which moves upward in head; at same time in r. heel. Pain in r. ear—4th d. Pain in r. side of neck. Pressing pain in l. arm, just above elbow, and numb pain down forearms to hands. Acute needle-pricks in fingers. Severe pains in all l. toes save 1st, after 8th dose; also pains, of short duration, in l. leg, arm and hand. Pressure and sensation of lameness, particularly in hand, arm to elbow, and foot. After 30th occurred (confirmed by Hering's experiment with 3rd) pimples on abdomen, but principally on thighs and legs, points of which soon formed a crust, and scaled off 17 d. after commencing proving. (*Ibid.*)

4. Dr. Husemann took 30th and 1st. From latter only symptom reported is—In e. of 2nd d., after retiring, on closing eyes red sparklings cross each other in all

possible directions; this gradually ceases, and there remains a red flaming trembling for a few m., which disappears after opening eyes. Symptoms from 30th are mostly trivial, and the few noteworthy are unconfirmed. (*Ibid.*)

5. Dr. WALTER WILLIAMSON took at 5 p.m. 20 drops of 5th. Immediately felt stunning sensation in head, most in front, and stiffness and soreness in nucha. At 10 took teaspoonful of 1 to 200 solution: in 15 m. following symptoms appeared in succession,—compressing pain in r. frontal eminence, dislocative pain in first joint of r. little finger, drawing round l. eye, pain in r. outer ankle, heat in sole of r. foot, deep-seated pain below r. knee, with pain on inside, sticking under ribs to l. of ensiform cartilage, trembling in r. biceps. On 9th heavy pain in l. half of head along coronal sutures. Took another teaspoonful. Excessive languor, decidedly uncomfortable sensation in stomach. P.m.—Profuse sour offensive perspiration, free evacuation of bowels twice. On 10th, soreness in muscles of thighs, aching in r. elbow-joint, lameness in l. hip. On 11th, soreness and pain on motion in l. hip, particularly felt on getting in and out of bed; elevated round and red blotches over eyebrows, most on l., but longer-lasting on r.; in eyebrows some pityriasis, with pricking sensation. On 12th eruptions continued through day, but other symptoms were absent till e., when he had pricking sensation in ends of index fingers, most in l., and in r. thumb; penetrating pain in l. side of l. knee; aching in l. elbow; crawling in sole of r. foot; copious urine of pungent and strong odour; pain in r. frontal eminence; aching in l. index; dryness of l. half of palate and roof of mouth. At n. sweetish taste in throat, and deep-seated pain in l. lumbar region. (*Ibid.*)

6. Dr. JEANES took 5 drops of 3rd. Immediately after, acid taste and greasy feeling in mouth. In 5 m. confusion and pain through head. In 8 m. pain in inner condyle of l. femur; in 45 m. in r. hip. In 2 h. burning feeling in sole of r. foot. In 3 h. pain about r. wrist and finger-joints, in first joints of toes of r. foot, in r. instep (with burning). There was, after taking dose, prickling of tongue and increase of saliva for some h., with afterwards smarting feeling of palate, as if something very acid had been gargled; feeling of tenderness and irritability in larynx; coughing to clear throat causes feeling of soreness, which shows an unusual degree of sensibility. (*Ibid.*)

7. Dr. NEIDHARD took, at 9.30 a.m., 30 drops of 2nd. In a few m. uneasiness about heart, in 15 m. aching there; after 1 h. soreness and jerking, which in another h. became painful. With cardiac uneasiness began determination of blood to head, with heat in forehead, gradually increasing to frontal headache. Very soon eructation of wind and sickness at stomach; latter increasing up to 2 h., with general heat, heaviness, and lameness. In 15 m. slight lameness in r. arm, and burning in eyes. Very soon, aching pain in sacrum, and during 1st and 2nd h. jerking there. In 1 h. rheumatic pain in bones of l. arm, from elbow to shoulder, with lameness. In 2—3 h. pyrosis with nausea, heaviness above eyes and sick headache. In 3—4 h. violent burning pain in all the toes, so that he can hardly walk; soreness in chest. In 4 h. pressive headache in both temples; toothache, drawing in l. lower jaw; still some sickness of stomach, with vertigo and headache; occasionally stitches and drawing through l. testicle to abdominal ring and spermatic cord; oppression with pain in chest; small stitches in side; pain in r. knee-joint with some in bones of r. forearm. After dinner some bitter eructations. In e. headache in r. forehead and itching in r. internal canthus of eye; inclination to diarrhœa, two stools. Next day, afternoon, frequent acid eructations, with pyrosis

and passage of flatulence; pain in r. upper arm in bone towards elbow, passing over to l.; two hard stools. (*Ibid.*)

8. Mr. E. SMITH proved 1st and 2nd.

a. 5 m. after taking 40 drops of 2nd, there commenced an increased flow of saliva, which caused him to spit constantly for about 10 m., when he began to feel a pain in head, a sensation as if head were too heavy, and would drop down from one side to the other, also a pressing outward from within; after this pain had commenced the flow of saliva began to diminish, and in about an h. ceased entirely. The feeling of heaviness in head continued in a diminished degree until going to bed: he awoke with it in m., but it ceased at 9 a.m. On bending the head (stooping) on previous e. a dull, quick throbbing pain came in r. temple, lasting only a short time.

b. Soon after taking 1st, at 6 p.m. 10 d. later, there commenced the same salivation, with a dull heavy pain in whole head, slight fever heat under eyes, sickness of stomach with desire to vomit, heat in gums, later in pharynx. These feelings passed away in an hour. At 7.30 a dull heavy pain in upper part of forehead, passing sometimes to upper part of both temples, more particularly in l. This pain is increased on stooping. Shooting pain in bowels, as if from wind, sometimes very acute. Next m. there was rumbling there, with wandering pains. Dead feeling in r. knee-joint. At 10.30 (other pains having ceased, save in head and knee), a sore pain l. side of the chest, as if beneath skin, felt only on moving, and a similar pain in l. scapula. He awoke in m. with a slight pain in forehead, which soon passed away. On getting up, pain in l. chest, as yesterday. After breakfast, no pains save on quickly moving head, which caused aching all day. (*Ibid.*)

II. *Poisonings.*—The local effects of the acid are those of a powerful corrosive caustic. This is seen in the case of fatal poisoning reported by King (*Trans. of Path. Soc.*, xxiv, 98), where half an ounce caused violent vomiting, speedily followed by collapse, and death in 35 h.; in the instance given by Gruber (*Oest. Med. Wochenschrift*, N.S., ii, 2, 242), where a minute's exposure of the hand to the vapour set up violent pain, inflammation, vesication, and suppuration, with fever; and in the experiments of Kreiner, who took solutions of various strength, which excited the objective and subjective symptoms of inflammation in mouth and throat, with vomiting, followed by nausea, eructations, and lassitude. (*Ibid.*)

ACIDUM GALLICUM.

Gallic acid, Trioxybenzoic acid, $H_3C_7H_3O_3.H_2O$. Prepared by action of sulphuric acid on galls.

I. *Provings.*—1. *a.* Dr. D. S. KIMBALL took, Sept. 5, 8 a.m., gr. j of acid triturated with gr. xx of white sugar. Increased secretion of pale urine and distension of bladder at 1 p.m.; when eating at 3 found appetite diminished and taste less acute than at breakfast. 6th. Towards m. gnawing, faint and sick sensation in bowels. Evacuation at noon, leaving a smarting, aching, faint, sick. hungry and gnawing sensation in bowels, extending to stomach, with nausea, lasting most of afternoon; smarting, especially in rectum. Awoke from afternoon siesta with

urine and bladder symptoms of yesterday. 7th. Same symptoms, only less intense, with photophobia. At 9 p.m., pain in r. lung, lessened on lying down. 8th. On rising, same pain, increased by coughing and full inspiration. (Had had congestion of lungs, especially r., 9 mo. previous.) Inhaled aconite. In e. pain somewhat increased. Next m., soreness felt at seat of pain on gaping, coughing, and deep breathing. Took phosphorus, and symptoms disappeared.

b. March 14.—Had already such sensations in bowels as produced by medicine, with hæmorrhoidal irritation after stool—"relics of an old dyspepsia," also much post-nasal catarrh. Three grains of 1x were triturated with 10 gr. of white sugar, and 3 gr. of resulting powder taken at 8.30 and 6.30. M. stool that d. delayed till 3 p m.; next m. all symptoms better, but urine increased 7 oz, and gums sore on l. side round decayed tooth. 15th. Took two doses as yesterday. Urine still copious. In aft. and e. photophobia and burning itching of lids; dryness in mouth and throat, and bad taste. In m. some aching in middle and upper part of lungs, more in l., extending through muscles of neck and r. shoulder, and down upper spine, especially on moving and turning head. Also frequent itching of skin in various places. 16th. At same hours, took gr. iij and iv of 1x trit. Aching gradually gone off; photophobia and palpebral itching continued that day, and till the 19th. Increasing doses (to gr. xxvij) were taken on 18th and 19th, with progressive improvement in morbid symptoms and production of nothing fresh. Urine now had some red sediment.

c. On several subsequent occasions, took 1x trit. for such symptoms, always with relief, and generally with development of diuresis and itching here and there on skin. (*Amer. Observer*, ix, 523.)

ACIDUM HYDROCYANICUM.

(With AMYGDALA AMARA, the bitter almond; LAUROCERASUS, the cherry-laurel; and KALI CYANATUM, the cyanide of potassium.*)

Prussic acid. A compound of hydrogen and cyanogen—the latter itself consisting of carbon and nitrogen in combination. It is the poisonous element in cherry-laurel water and oil of bitter almonds; but is obtained for medicinal purposes by distilling the yellow prussiate of potash with sulphuric acid and water.

I. *Provings.*—1. *a.* ASSMANN took on May 21st, at 7 a.m., gtt. j of Vauquelin's acid (3·3 per cent.) in ℥j water. Felt nothing but slight scraping in larynx soon after and some weariness about noon. At 3 p.m. took gtt. ij, in ℥j water. In few m. confusion of head, dimness and fog before eyes, and feeling in head like slight intoxication; tension in forehead, considerable scraping in larynx. In e. marked weariness of whole body, and especially of legs. At n. long and deep sleep. More mucus than normal secreted and coughed up from trachea in e. May 22nd. Took at 7 a.m. gtt. iij in ℥j water. Almost immediately mist before eyes, heaviness and pressive sensation in forehead, and compression of whole head; scraping in larynx. In ½ h. respiration oppressed; after 1 h. could not move body without effort. With this, depression of spirits, and disinclination for all bodily or mental work, all day. At 9 a.m. sensation in chest as if constricted across, without pain. Appetite gone at noon, but unusually ravenous in afternoon. Pulse unaltered.

b. May 26th, at 8 a.m., took gtt. j of Ittner's acid (10 per cent.) in ℥j water. Soon after general confusion of head and some weariness

* "The venena cyanica all act in proportion to the prussic acid they contain or represent; they are partly products of the vegetable kingdom, and partly artificial chemical products." (BOEHM, *op. cit.*, p. 498.)

for some h. June 1st, 3 p.m., took gtt. iij in ℥j water. Soon scraping in larynx, confusion and dull feeling of pain in forehead. Slight pressure and tightness of chest. In m. prostration and weariness. June 2nd, 8 a.m., took gtt. iij in ℥j water. Immediately obscuration of vision, with sensation of intoxication, and an out-pressing pain, gradually becoming more violent, shooting and boring, in forehead and orbits. Some m. later tickling and scraping in larynx, causing frequent dry cough. At same time pressure, afterwards shooting pain, in both sides of chest, respiration became difficult and deep, and all movements, especially walking, became difficult, and brought on perspiration. The dim sight and pain in head soon went off, but then came on palpitation and flying shoots in heart. Soon after taking dose there was eructation with taste of acid, and after this feeling of lump lying in and pressing on stomach, gradually changing to shooting pain, which subsided after a time, leaving sense of pressure. At 9 a.m., after eating bread and butter, discomfort with loathing, afterwards heartburn and waterbrash, with great flow of saliva. At noon these symptoms were allayed, and he had increased hunger with dislike of food. At 1 p.m., on going out, violent hiccup lasting 1 h., going off after cup of coffee, but frequently recurring in afternoon, especially after drinking water. Weakness, exhaustion, ill-humour and anorexia lasted till late in evening, and pain in forehead and chest recurred occasionally. Pulse but little slower than normal. No increase of urine. Tendency to heat and perspiration. (JÖRG, *Mat. zu ein. künft. Heilm.*, 1825.)

2. *a.* HEISTERBERGK took, May 20th, at 3 p.m., gtt. ½ of Vauquelin's acid in ℥j water without effect. May 21st, at 8 a.m., gtt. j, at 3 p.m. gtt. ij in ℥j water. No effect from first; 15 m. after second pressive sensation in forehead for some m. Pulse regular. May 22nd, at 8 a.m., gtt. iij in ℥j water. Scraping in gullet, pulse irregular in force of some beats for 10 m. In first ½ h. some flying stitches in r. 5th and 6th ribs near sternum. Slight pressure in forehead.

b. May 25th, at 8 a.m., gtt. j of Ittner's acid in ℥j water. Only slight scraping in throat. May 26th, at 8 a.m., gtt. ij in ℥j. Symptoms as on 22nd, but pain in chest was pressive. May 28th, at 8 a.m., gtt. iij in ℥j. Scraping and tickling in throat and pressive pain in chest, lasting ½ h. In afternoon, shooting for 20 m. under r. short ribs. (*Ibid.*)

3. *a.* KNESCHKE took, May 20th, 3.30 p.m., gtt. ½ of Vauquelin's acid in ℥j water. In 5 m. slight confusion of head on r. side, extending from occiput to forehead and causing slight pressure there, lasting 15 m. May 21st, 7 a.m., gtt. j in ℥j. In 3 m. confusion in r. side of head, with slight pressure in occiput and sinciput of same side, lasting 45 m. Slight scraping in throat from 8 a.m. till noon. At 3.30 p.m. gtt. ij in ℥j. In 1 m. confusion of whole head, with transient vertigo. 5 m. later a more violent pressure in occiput and sinciput, mostly on r. side, for 1 h. Confusion lasted till n., and so did a troublesome scraping in throat, which came on ½ h. after taking acid, like what occurs after eating freely of walnuts. Slept quietly and soundly. May 22nd, 7 a.m., gtt. iij in ℥j. In 4 m. a peculiar stupefaction and

vertigo; surrounding objects seemed to be moving, and a slight veil was before eyes. Could with difficulty stand on feet. In 2 m. this went off, and was followed by confusion and pressure in head as before, lasting till noon, going off then in open air. Scraping came on immediately after taking dose, and lasted till e. Ate heartily at noon, and at 2 p.m. felt quite well. After this great prostration and lassitude, could not work, irresistible yawning and sleepiness, must go to sleep for an h. On being awakened, felt quite stupid in head and must go to sleep again. After ½ h. more woke pretty thoroughly, but confusion in head lasted till e. In afternoon passed much watery urine, causing burning in the urethra as it passed. Pulse at 4 p.m. 5 beats slower than usual, normal in e. Slept soundly and quietly. May 23rd. Another dose of 3 drops caused same succession of symptoms as on previous day, but slighter in degree.

b. May 24th. Took gtt. ½ of Ittner's acid at 7 a.m. in ℥j water. Confusion, pressure and scraping followed, but were slight and brief. On May 25th, gtt. j brought them on again, and they lasted till noon. May 26th, at 7 a.m., took 2 drops. Immediately vertigo, lasting some m. Then confusion and painful pressure (always worse on r. side) till 2 p.m. Head thence freer, but lassitude and weariness till late in evening. Scraping all day; diuresis without scalding. Sleep sound. On 27th, 3 drops produced same effect, and from 9 to noon peculiar sore feeling in skin of thighs. (*Ibid.*)

4. *a*. Otto took, May 20th, 3.30 p.m., gtt. ½ of Vauquelin's acid. In 15 m. scraping as with others, lasting till 7. In 1 h. slight pressure in sinciput, giving place to peculiar sensation in upper nasal fossæ; it seemed as if mephitic air passed through them to Schneiderian membrane, causing prickling sensation in latter. Pressure on head lasted till 5.30 p.m., gradually increasing, but not amounting to actual pain. At same time contraction of chest, with stitches there on taking deep breath. May 21st, at 7.30 a.m., gtt. j in ℥j water. Scraping as before. At 9 tightness of chest, with slight pressure in cardiac region, followed soon by pressure in head from vertex to both frontal regions and orbits, where it fixed itself; also pressure from occiput to nape. Though not pain, this pressure caused slight confusion of head. Between 9 and 10 extraordinary weariness and drowsiness. At 11.30 all right, except occasional slight pressure here and there in head. At 3.30 p.m., 2 drops. Scraping became a peculiar prickling irritation from larynx to low down in trachea, exciting hacking cough. Windpipe felt as when hoarseness occurs after chill, or when dog-hips have been eaten, and some of the hairs remain in the gullet. At 7 this changed into dry feeling of mouth and larynx. Soon after affection of windpipe showed itself there was tightness of chest, but no stitches. Once only there was concurrent pressure on right side of thorax: pulse then fell from 65 to 60. 1 h. after dose, pressure began in occiput, and spread to forehead, nearly amounting to pain; with it confusion. Pulse now 55 to 58. Urine passed more frequently, but not out of proportion to fluid taken. By 7 nearly well, but pulse continued down till bedtime. May 22nd, at 7.15 a.m., gtt. iij in ℥j. In 15 m. felt as if everything moved slowly about him, and became giddy without

staggering; at same time usual pressure on l. side of head. Eyes seemed immoveable, fixed on one point, pupils somewhat dilated, afterwards contracted, and remaining so all day. Pulse less energetic, sometimes strong, sometimes weak, and quickened from 62 to 68. This state, resembling intoxication, lasted 10—15 m., then suddenly ceased, and in ½ h. felt quite well. But this feeling was disturbed by tightness of chest and dyspnœa; felt as if he could not expand lungs properly. After this, again pressure in head, this time more on r. side; afterwards drowsiness, which he could resist, though he often yawned. At 10 a.m. pulse again 60. All symptoms gone by 11.30. May 23rd, at 7.15 p.m., gtt. iij again, followed by same symptoms. Notes that eyelids were wide open. Pressure on head jumped from spot to spot; and, with drowsiness, lasted during afternoon. Diuresis again noticed.

b. May 24th, at 8 a.m., gtt. ½ of Ittner's acid in ℥j water. Scraping, tension of chest, slight quickening and irregularity of heart, and shifting pressure in head, recurred. First and last continued till e. May 25th, at 8 a.m., 1 drop. Scraping worse, combined with shooting; relieved towards 11, but left feeling as if larynx were swollen, and thereby narrowed and pressing on neighbouring parts; no dysphagia. Chest, heart, and head symptoms as before; thinking rather difficult, and unsolicited thoughts come into his mind. May 26th, 8 a.m., 2 drops. Scraping and shooting were accompanied with increased mucous secretion and spitting. Tension of chest and pressure in head amounted to pain: after these had lasted an hour, rumbling in abdomen came on, then sudden pain in r. renal region, extending to epigastrium, and thence all over abdomen, with sense of heat therein. Abdominal symptoms lasted an hour; with them, copious flow of saturated urine. Felt unwell generally; had several cold chills and shivering. At noon great drowsiness. Scraping lasted till bedtime, and pressure in head recurred here and through the day. In evening weariness and bruised feeling of whole body. (*Ibid.*)

5. Jörg took, May 31st, at 9 a.m., gtt. ½ of Vauquelin's acid in ℥j, without effect. At 3 p.m., gtt. j. Pressure in head after 1 h. like that of others, lasting off and on till e. Between 5 and 6 shooting inside chest, at spot corresponding to l. nipple. Drowsy next m. June 1st, at 9 a.m., 2 drops. Constrictive sensation immediately at root of tongue, leading on to scraping, followed by much mucus all day. Shifting pressure in head all day, from ½ h. after dose. Little appetite for noonday meal, mouth dry before and after it. From 2 p.m. gloominess and ill-humour, going off in open air at 8. From 10 a.m. till 8 p.m., pulse 5 or 6 beats slower than ordinary. Slight shooting at lower sternum for 5 m., 3—4 p.m. At 7, while driving in a springless carriage which shook him much, slight rigor and mist before eyes. This lasted only a few m., but he felt as if exhausted from prolonged brain exertion. This went gradually off, but frequent attacks of chilliness supervened, removed only by walking briskly. On 2nd, 3rd, and 4th, felt not as strong and well as usual, irritable, and indisposed to mental work, and had several attacks of shooting headache, at various spots, lasting ½ h. to 1 h. (*Ibid.*)

6. Coullon took, by degrees, 20, 30, 50, 60, 80, and 86 drops of

tolerably concentrated acid diluted with same quantity of water. After first-named doses perceived nothing unusual; after latter salivation commenced at once, and lasted several m., with two or three feeble attempts to vomit. Pulse, previously 57, rose to 77; after an h. as before. For several m. head felt confused, and a slight pain under skin of occiput lasted more than 6 h. He had also præcordial anxiety, alternating with slight throbbing pain in part, not increased by pressure. (*Recherches*, 1819, pp. 127, 193.)

7. PREYER, during his experiments with h. acid from 1867 to 1869, became very sensitive to it, and a single olfaction of very dilute gas produced intense scraping in soft palate, frequent headaches lasting for hours, feeling of fulness in head, and—on repeated smelling—undefinable pains in chest with constriction and great lassitude. (*Die Blausäure*, 1870.)

8. ITTNER (1809), after breathing h. acid, noticed transient confusion and slight giddiness. The same thing showed itself if he took 4 or 5 drops of his (nearly 10 per cent.) acid dropped upon sugar. On inspiring acid from ethereal solution he immediately felt powerful constriction of chest, and respirations became difficult. After ¼ h. smart chill alternating with heat, confusion, and vertigo. Heat lasted about 12 h.; vertigo, constriction, and lassitude nearly 8 d., which he passed in bed. During the first days it appeared to patient as if spleen were enlarged. After 14 d. complete recovery. (*Ibid.*)

9. WEDEMEYER (1817) writes that one drop of acid (apparently 9 per cent.) placed on tip of tongue produced long-lasting feeling of numbness in spot touched, and in voluntary muscles feeling of great weakness. After experimenting with acid, while still fasting, for several successive mornings in his own bedroom, he had for whole d. such severe giddiness, without headache, that he reeled about the street like a drunken man, and could see nothing clearly. (*Ibid.*)

10. In a pathogenesis contained in vol. i of Hartlaub and Trinks' *Arzneimittellehre*, purporting to belong to Laurocerasus (Kirschlorbeer), but containing also effects of bitter almonds and h. acid, the following symptoms are ascribed to the acid by HARTLAUB:

Want of courage and of power to think. Memory weakened. Dizziness (soon after taking it). Very violent, stupefying headache; brain seemed to beat against skull on stooping head. Sunken features. Complexion earthy, grey. Fluids drunk rumble audibly through œsophagus and bowels. Furred tongue. Tongue white and rather dry. Anorexia. Excessively weak and exhausted. Very chilly; he is cold to touch. Dry skin. Pulse weak and slow.

11. A. W. WOODWARD, M.D.—8 a.m., health sound, pulse 65, regular; took one minim U. S. P., on sugar. Immediately before swallowing, stoppage of nose and constriction of throat, with difficult breathing as if glottis was closed; after swallowing, repeated eructations and feeling of lump in stomach. 8.2. Constriction of throat returns, forehead moist and clammy, pulse 74, weak, thin, irregular. 8.10. Slight vertigo, increased by motion; pulse 86, weak and thready; exercise causes oppressed breathing and slight nausea, with sweat on face and hands. 8.15. No appetite for breakfast; a few mouthfuls cause

nausea and desire for stool, with renewed oppression of chest and palpitation of the heart; pulse 90. 8.22. Feels semi-intoxicated; increased vertigo; face flushed; considerable restlessness, with dyspeptic fulness of stomach; occasional sneezing at this time; pulse 96, weak. 9. Urgent call to stool, copious and mushy; felt very weak afterwards, with general perspiration; sour eructations attend stool, with faintness and oppression of chest as of a load; languor and sleepiness followed. 10.30. Neuralgic pain in right hip and thigh, afterwards in region of heart; constant perspiration; occasional sour eructations; pulse 72; frequent yawning past hour. 12.30. Sinking at stomach, but cannot eat; sexual excitement without cause; called to urinate soon after. Languor and dull headache until 3 p.m. Well as usual afterwards. (*Communicated.*)

12. *Cherry-laurel water.* Aqua Laurocerasi.—Prepared according to Pharm. Saxon., Dresden, 1820, p. 168. One pound of fresh cherry-laurel leaves cut into shreds, one ounce of highly rectified spirits of wine, and six pounds of common water are mixed, and three pounds of liquid extracted by distillation. This constitutes the preparation.*

ENGLER began with 5 drops on June 8th, 1822, at 8 a.m., and found after it that pulse was slower by a few beats. On 10th at 8 a.m. increased dose at once to 10 drops. Experienced all through forenoon constant taste and smell of bitter almonds, dryness of mouth, together with scraping feeling in throat, and slight headache on l. side. Pulse, previously 70 and over, beat scarcely 60 in m. All these symptoms disappeared after midday meal. 11th.—After 15 drops same effects as on previous day. 15th.—After 20 drops at 8 a.m. dryness of mouth and scraping in throat came on more moderately than on 10th, but headache lasted longer, and appetite was unusually keen. Pulse retarded by a few beats, but returned to normal soon after midday. On 18th took 25 drops, and during whole day perceived nothing of above-named dryness in mouth or scraping feeling in throat; complained only of dull pressing pain spreading over whole of l. side of head, lasting obstinately for many hours. Pulse less markedly altered than after previous small doses. (JÖRG, *op. cit.*)

13. GÜNTZ on June 6th at 8 a.m. took 5 drops without any effect. After 10 drops on 7th remarked 10 m. afterwards that pulse sank to 65, and 10 m. after dose of 15 drops on 8th to 60 beats. 11th.—Increased dose to 20 drops. Pulse slackened as before, only after this dose slight headache came on. After 25 drops on 15th pulse was again slow, headache again present, and 1 h. after taking dose hands became tremulous. All these symptoms vanished at 10 a.m. (*Ibid.*)

14. HAASE on Mar. 29th took 10 drops, and on following day 15, Ap. 1st 20, Ap. 2nd 25 drops, each time at 8 a.m. (after having previously drunk in the early morning a quantity of milk), without perceiving any alteration in his condition. On Ap. 4th repeated dose of 25 drops, and noticed after about 10 m. that pulse was a few beats slower. Towards 2 p.m. pressing pain on l. side of forehead set in, but did not last above 15 m. On June 6th 10 drops, on 7th 15, 11th 20, 12th 25, and on 15th 30 drops were taken without any effect. On June 19th, towards 7 p.m., rose to 35 drops, and 15 m. later felt slight decrease in pulse beats, followed shortly by pressing pain in right parietal bone near vertex, increased by touching this spot. On 20th 40 drops swallowed towards 7 p.m. gave rise only to slackening of pulse by a few beats. (*Ibid.*)

15. HEISTERBERGK on June 6th at 8 a.m. took 10 drops in about 6 parts of water and found no effect. Pulse remained normal, 67 to 70. On 10th raised dose to 20 drops, and 1½ h. later noticed trifling heaviness of head; pulse as on 6th. 11th.—30 drops taken at 8 o'clock caused after an hour's time feeling of heaviness in head. "This heaviness lasting 2 h. was not actual pain, but resembled that which occurs at the commencement of a coryza or after a debauch." On 15th rose to 35 drops, and after it felt indisposed as on 11th. On 19th, 15 m. after a dose of 50 drops taken at 6 p.m., pulse became smaller and slower (60 to 63), and above-

* According to the Pharm. Borussica this water is as strong again.

mentioned feeling of heaviness in head came on 15 m. later. Although not worse than on previous day it spread, especially towards forehead, and lasted till 10 p.m. 20th.—60 drops taken at 8 a.m.; pulse after a while smaller and slower (59 to 63), but not irregular; ½ h. later heaviness in head came on again, especially in anterior part, accompanied with moderate pressure in orbits as if eyeballs were rather too large for bony cavities. At 10 a.m. pulse was again regular, and at 1 p.m. heaviness in head and pressure in orbits had vanished, a frugal dinner being meanwhile consumed with zest. On 20th, at 3 p.m., took 112 drops all at once, and perceived 10 m. later feeling of heaviness in forehead and pressure in orbits, but not worse than in former experiments; 15 m. after dose pulse was small, contracted, and slower (58 to 59). Towards 7 p.m. head was again quite free and pulse regular. June 22nd. 80 drops taken at 8 a.m. after eating a quantity of bread and butter 1 h. previously; perceived heaviness in head, though very trifling; pressure in orbits not at all, and pulse somewhat smaller, but not slower than usual. Notwithstanding that Hbk. took drug in very large doses he testifies that no other effect had followed in his case, no headache, giddiness, tremor of limbs, or obfuscation of senses was present. (*Ibid.*)

16. MEURER took 5 drops at 5 p.m. on March 28th without any effect. Mar. 29th, at 9 a.m., 10 drops, followed after lapse of 5 m. by pressing headache in frontal region, lasting ½ h., and then vanishing gradually; pulse was somewhat slower, but remained full and regular. After dinner, eaten with zest, could not resist temptation to sleep, and slept longer than accustomed to do occasionally at other times after dinner; 1½ h. later was quite well again. Mar. 30th, 8 a.m., again took 10 drops; after few minutes pressing headache appeared, attacking forehead and occiput alternately, and after ½ h. vanished gradually. Pulse 12 beats per m. slower. Was altogether much fatigued. 31st, 8 a.m., 15 drops taken, followed by some lessening in frequency of pulse, as also by headache, worse at one time in forehead, at another in occiput, but felt worst and most continually above orbits. To-day there came on peculiar sensation in region of stomach; he cannot call it nausea, though it resembles feeling that precedes vomiting. Was likewise again much fatigued, and remained whole day more passive than active. Ap. 1st, 8 a.m., 15 drops. Experienced above-mentioned pain in head, which ceased as long as he remained in open air (1 h.), weather being fine and cold with morning wind, but became worse in heated room, where he felt particularly bad and much fatigued; sensation of nausea in region of stomach set in; contrary to custom fell asleep at noon, and only awoke at three, although he had slept well previous n.; ate towards e., and slept well and long following n. Pulse also showed to-day above-mentioned changes. Next day still not quite well; appetite still small, felt sluggish, and incapable of work. June 6th, 8 a.m., began again with 5 drops, but observed no alteration of natural state of health. June 7th went on to 10 drops, whereupon slight transitory pressure in frontal region, and especially over orbits, came on; pulse, however, remained unaltered. Attributes weakened action of drug on this occasion to change in quality of drug or to that one remains more in the open air in June. 8th, 8 a.m., immediately after swallowing 15 drops felt same headache and in same spot, but more severe; pulse 12 beats slower; felt himself afterwards much fatigued and disposed to sleep. 9th, 8 a.m., again took 15 drops, and became indisposed as on previous day. 4 p.m., took 20 drops, and felt headache, which at once set in and became of a boring character; beyond this felt considerable fatigue, disinclination for all work, moroseness, and somnolence; so long as he remained in room sleep threatened to overcome him, but spending e. in company in open air was enabled to withstand it. Appetite remained undisturbed, and he slept following night very well; next m. found himself, however, not quite brisk. 12th, 11 p.m., took 25 drops. Immediately after dose severe boring headache above orbits came on; went to bed, soon fell asleep, and slept till 5 a.m. without waking, feeling by this time quite well. 13th, 9 a.m., repeated 25 drop dose, which was soon followed by above-mentioned pain in head, slower pulse, general weariness, and inclination to sleep. 8 p.m., took once more 25 drops; headache again occurred, but pain spread over whole head and became more pressing; overcome by sleep slept 2 h., becoming thereby more inclined for work; beyond this had frequent tasteless eructations, although no other disturbances of digestion were present, and he ate his food with good appetite and in usual quantity; following n. slept very well, finding himself pretty well on 14th, and quite well on 15th. 16th, 8 a.m., took 30 drops, which were soon followed by all effects of

previous doses, only pressing headache spread over whole head. At 4.30 p.m., feeling still fatigued from m. dose, took 35 drops. Headache increased, but besides above-mentioned symptoms there was fatigue, retarded pulse (12 beats), disinclination for all activity, and inclination to sleep; feeling of emptiness in stomach felt to-day for first time although he had dined as usual at midday. This vanished after ½ h. without his having eaten anything, but headache lasted several h.; enjoyed his supper. Towards 10 p.m., before going to bed, took another 35 drops; pressing headache and retarded pulse followed. He soon fell asleep, and slept well whole n., and on following d. was quite well. (*Ibid.*)

17. KNESCHKE gives following results:—"5 and 10 drops of aqua laurocerasi, former taken Mar. 28th, after 5 p.m., and latter Mar. 29th, at 9 a.m., had not slightest effect upon me." "Mar. 30th, rose to 15 drops; immediately after dose noticed slight confusion in head, lasting an h. Pulse sank from 70 to 65 or 66. Noticed no other departure from normal condition. Same results followed on April 1st from 20 drops, and on raising dose on April 2nd to 25 drops, confusion in head, especially in frontal region, was not only no worse, but pulse was only 5 beats slower than normal. Effect of drug did not last quite an h.; presented no other symptoms than those above narrated." "6th, 8 a.m., 5 drops produced no effect; same was the case from doses of 10, 15, and 20 drops, taken on 7th, 8th, and 11th respectively. June 13th, 25 drops taken; immediately afterwards perceived slight pressure in frontal region, which, without becoming worse, lasted fully ½ h. During this time pulse sank from 70 to 64 or 66. Same pressure, which became by degrees more acute, occurred on 15th, after 30 drops, but ceased in time mentioned above; pulse 64, otherwise nothing abnormal noticed. 18th.—35 drops produced within 1 m. of being taken confusion in head, going on to pressive pain, especially in frontal and orbital regions; effect of drug extended over nearly an h., during which pulse beat 60 to 62." "Doses of 40, 45 and 50 drops taken on June 20th, 22nd, and 25th respectively, produced precisely similar results; pulse, instead of 70, beat only 60, and considerable dulness of whole head, accompanied constantly in frontal region by pressive pain, was present during whole time; beyond this every bodily function was in its normal condition." (*Ibid.*)

18. KUMMER, on June 6th, at 8 a.m., took 5 drops, on 7th 10, 8th 15, 11th 20, and on 15th 25 drops, but could not perceive slightest ill effect. 18th, 8 a.m., took 30 drops, and perceived after dinner, towards 1 o'clock, acute pressive pain in l. frontal region, spreading by degrees over whole head; thinking and other mental occupations rendered very difficult; sleep uninfluenced, however. 19th.—On awaking same pain set in and lasted till 3 p.m. Perceived no influence upon pulse, digestion remained regular, but urine deposited thick sediment on standing. (*Ibid.*)

19. STRÖFER, after 5 drops, taken June 6th, found no effect, but after 10 drops, taken on 11th, noticed his pulse 4 or 5 beats slower. 12th, after 15 drops, found pulse 5 or 6 beats slower, and on 15th, after 20 drops, 8 to 10 beats slower; same effects followed dose of 24 drops on 17th. On 22nd, after swallowing 30 drops, effect was much increased, for beats were diminished about 12 per minute. (*Ibid.*)

20. PIENITZ, on May 4th, 1824, at 8 a.m., took 3 drops, and beyond two transitory stitches in occiput 5 m. after dose noticed no ill effect. 5th, at same time, took 5 drops, which caused after 5 m. dull pressive pain in forehead and confusion in head, both lasting 1 h.; pulse smaller and quicker than normal. 20th.—20 drops, taken at 8 a.m., caused within few m. previously noticed pressure in forehead and confusion in head, with smaller and quickened pulse, which symptom vanished, however, after ¼ h. May 21st, 8 a.m. A few m. after 30 drops noticed somewhat greater confusion in head, giving place at 9 o'clock to pressive pain in forehead, which lasted only ¼ h., pulse meanwhile smaller and quicker than usual. After 35 drops, taken same day at 3 p.m., same effects followed, only that confusion in head was worse and lasted longer. After last 3 doses fæces were drier and harder than usual, otherwise appetite, sleep, and other bodily functions remained normal. (*Ibid.*)

21. SEYFFERT took 4, 8, and 12 drops without any effect. May 15th, after 20 drops, taken at 8 a.m., felt transitory nausea and passing giddiness, which he thought would perhaps have lasted longer if he had not moved about in open air. On reaching home great inclination to sleep was present, which he was obliged to yield to for at least ¼ h. Before and after sleep pulse beat 68, instead of 70 as usual. By midday, when he ate his dinner, all unpleasantness seemed to have vanished. 35

drops taken on 18th caused only slight transitory giddiness, followed by drowsiness, but without preceding nausea. Pulse during following h. beat 69 per m. (*Ibid.*)

22. SIEBENHAAR tried 3, 4, 5 and 8 drops without effect. May 10th, 8 a.m., took 10 drops: dull and tolerably severe pressive headache followed, lasting until afternoon; pulse meanwhile beat somewhat less in m. A somewhat severe cold obliged him to discontinue his experiments. May 19th, at usual time, took 12 drops, and after lapse of about ½ h. noticed confusion of whole head, changing by degrees into genuine dull headache, felt chiefly in temporal regions and forehead. Pulse meanwhile somewhat slower and weaker. By midday all these symptoms had vanished; he ate his dinner with good appetite, and during afternoon felt perfectly well. 20th.—14 drops caused same effects. 21st, 8 a.m., 20 drops; noticed soon after, confusion, especially of forehead; pulse beat more slowly and lost all energy; felt considerably fatigued over whole body, and towards 11 a.m. so overcome with sleep that he was obliged to lie down on sofa, where he slept ¼ h., although in a somewhat uncomfortable position; on awaking found himself incapable of standing upright and moving about. At midday normal frequency and force of pulse returned, as also his accustomed energy; headache also vanished. Whilst above-named effects lasted, raw feeling in throat and hoarseness were present, but disappeared after dinner. (*Ibid.*)

23. JÖRG took 6 drops mixed with 1 oz. water at 8 a.m. on May 14th, 1824. Some scraping in throat and tickling in larynx as from threatened cold followed, and lasted till 11 a.m. 15th, 8 a.m., 8 drops mixed with 1 oz. water caused slight confusion in head, lasting ½ h., scraping in larynx, and increased thirst, both lasting whole forenoon, and for about an h. slowing of pulse by 3 or 4 beats. Same effects followed 10 drops taken on 17th and 12 drops on 18th. On 19th, at 8 a.m., took 14 drops in 1 oz. spring water; soon experienced shooting pains in l. temple, confusion of head as if an acute coryza were about to come on, with feeling particularly as if brain at upper and anterior part of cranium were pressed, most of all in frontal region, with very sensible pressure towards orbits as if water would be pressed out of eyes (later in day increased lachrymation followed), scraping in larynx, with commencing hoarseness and increased secretion of mucus in larynx, and frequent inclination to cough, all lasting till midday. For about an h. pulse beat 1 to 6 less in minute. Towards evening was much fatigued, had hard and dry evacuation of bowels, same being very unusual, and longed for bed, where he fell asleep at once, and awoke with difficulty in m. 20th.—Experimented with 16 drops, and after taking drug at 8 a.m. in 1 oz. water obtained following effect:—"All symptoms of previous day and of 14-drop dose came on within 15 m., only confusion of head spread to-day over whole body so that common sensation was thereby considerably lowered; could neither thoroughly realise my own condition nor was able to feel things round me with usual clearness. This condition of general confusion, similar to that which comes on after drinking several glasses of wine rapidly one after another, was not accompanied, however, by the feeling of warmth or heat in whole body, and especially in head, as in tipsy condition after drinking wine quickly, but appeared, on the contrary, without slightest trace of accompanying heat. After this dose also irritation and scraping in throat, and especially in larynx, soon began; 10 m. after taking drug I was hoarse, and frequently obliged to cough towards midday, and during whole afternoon much tough mucus was secreted in windpipe, especially in upper part. Towards noon confusion of head and of whole body disappeared, natural sensation returned, but I had to endure during afternoon and until e. constant transient stitches, sometimes in occiput, sometimes in forehead. Towards e. was much fatigued, and was inclined for bed by great disposition to sleep. Enjoyed dinner and supper, but this may be explained by fact that during experiments with aqua laurocerasi I ate nothing in and during forenoon, only drinking two cups of coffee with milk. After this dose pulse remained for about 2 h. 5 or 6 beats slower than usual, and later on did not become quicker (than usual), but emerged from slower to normal rhythm. On this occasion also constipation was not absent, fæces being hard and dry. Felt each time lighter in fresh air, heavier in room." (*Ibid.*)

24. TRINKS took unknown quantity of juice of cherries.* In 1 h. became fretful; in 1½ h. sad, joyless and depressed, with anxious feeling in head, and heat—

* Christison states that the pulp of the cherries is innocuous.—EDS.

external and internal—in forehead, going off in open air. (HARTLAUB and TRINKS, *Arzneimittellehre*. i. art. Kirschlorbeer.)

25. HARTLAUB (*a*) from same; had anxiety in chest immediately, pain there in 5 m.; in ½ h. squeezing pain in occiput, with sleepiness, of short duration and little severity; in 1 h. similar but longer lasting pain in forehead, sleepiness continuing; at 8.30 p.m. excessive thirst with dryness in mouth, without heat; in evening in bed, great anxiety about trifles, was unable to fall asleep; sleep uneasy, with frequent waking, and serious, anxious dreams; felt much relaxed in m. Next d. from another dose had in ½ h. violent colic lasting 20 m., without alteration of pulse; at 4 p.m. recurrence of thirst and dryness of mouth, with shooting here and there in head; later, a kind of shooting and crawling in brain, violent and long-lasting. There followed complete constipation for 8 d. (*Ibid.*)

(*b*.) At another time, H. took aqua laurocerasi (in unknown dose). Violent throbbing headache in forehead came on immediately; in 1 h. dull pain in throat, cavity of chest, region of heart and stomach, and scapula on r. side only; in 3—4 h. pain in r. temporal bone; in 5—6 h. pain in stomach with qualmishness. At 4 p.m. had pressive pain in r. temple. Other symptoms were pain in r. side of forehead and in l. elbow; weariness in shoulders; and a kind of oppression causing anxiety, he is unable to work, must leave room and go into open air, but heaviness does not leave him for whole day. (*Ibid.*)

26. NENNING proved laurocerasus in his usual way, viz. on his wife's work-women, who received a consideration for the same.* [He reports every trifling deviation from health observed by these while taking the drug, and so loads his symptom-lists with a number of shootings and itchings here and there, rumblings in abdomen, variations in stool, and such like, which are obviously non-medicinal, and incident to everyone's normal condition. Hahnemann would do no more than make extracts from this surgeon's contributions, and we correspondingly and still more rigidly restrict our use of them.—EDS.]

As effects of expressed juice and distilled water of laurocerasus† Nenning reports —*predominantly gay mood*, with tendency to forgetfulness; vertigo, somewhat prolonged; *heaviness*, dulness, and fulness of head; some heat in forehead; feeling as if ice lay on vertex, afterwards also on forehead, then in nape of neck, last in sacrum, whereupon previous head troubles disappeared (2½ h.); violent aching round eyes, especially l., constantly increasing till 9th d.; violent bruised pain in whole lower jaw, lasting ½ h.; some salivation; rawness in throat, with hacking; frequent shooting and burning in r. hypochondrium, so that spot became painful even to touch (3 h.); awakened at 2 a.m by terrible cutting and contractive pain in whole abdomen, lasting 2 h., followed by two purgings, and cessation of pain; diarrhœa consisting of thin greenish mucus, with contraction in groins, 4 times in 2 h., without relief; urine in one case acrid, making pudenda sore; catamenia in three cases 8 d. too early, in two more profuse than natural; hoarse and deep voice; weak, prostrate feeling (1½ h.); in one person, redness and some vesicles, with violent itching, between index, middle, and ring fingers of both hands, for 4 d.; subsequently rawness and roughness there, with burning on wetting hands. *Chills, followed by heat*, seem to have occurred in several provers. (*Ibid.*)

27. *Bitter-almond water*. Aqua amygdalarum amararum.—Prepared according to Pharmacop. Saxon. 1 lb. bitter almonds are mixed with 1 oz. highly rectified spirits of wine and 6 lbs. water, and 3 lbs. extracted by distillation, latter being preparation used in following experiments.

ENGLER, on June 20th, 1822, at 8 a.m., took 5 drops in 1 oz. of water, and remarked that his pulse in 1 h. fell to 61. He obtained same effect on 21st, after taking 10 drops, at 8 a.m., within 15 m. pulse beating 64 (instead of 70 as usual); on this occasion also in short time feeling of heaviness in forehead came on. 22nd, 8 a.m., took 15 drops; this produced very shortly slowing of pulse by 5 or 6 beats, and during forenoon pressive pain in forehead about orbits. 26th.—20 drops taken at 6 p.m. caused during whole of following n. severe headache spread over whole head, whereby sleep was disturbed; pulse being same as from previous dose. 28th.—After

* See *Brit. Journ. of Hom.*, xxxv, 106.

† Symptoms from distilled water are italicised.

25 drops, taken at 8 a.m., pulse, after lapse of 15 m., fell to 50, and continued in this state for a whole h. During whole forenoon l. half of head was confused, but at midday this vanished by degrees. 29th, 8 a.m., he took 30 drops, and found pulse shortly afterwards had fallen to 61; noticed during whole forenoon pressure above orbits and compression of l. side of head; in afternoon inclination to sleep. July 1st.—Took 40 drops, at 8 a.m. Not only slowing of pulse to 54 beats came on, but during forenoon also complete confusion of whole head, which in afternoon was limited to l. side. In afternoon drowsiness and fatigue again followed. (JÖRG, *op. cit.*)

28. MEURER took 20 drops on June 22nd, 8 a m., and experienced slight and transient confusion of whole head. 28th, 8 a.m., took 30 drops, and 2 h. later 40 drops: general confusion of head followed both doses, but without stabbing, and less after 2nd than after 1st dose. Pulse was only a few beats slower, fatigue during afternoon slight, and during whole day felt inclination and strength for mental work. 30th.—Took 3 doses of 50 drops each, at 7, 9 and 11 a.m., and noticed after them weight and confusion of head, as from commencing cold, pulse falling 5 beats in m.; inclination for work was not exactly great, but he did not feel unfit for mental occupation. Enjoyed his dinner, drank two glasses of white wine, and felt afterwards quite well (*Ibid.*).

29. KNESCHKE, on June 29th, tried 30 drops, and immediately after taking was surprised by slight confusion of head, which vanished, however, a few m. afterwards. On July 1st, after 40 drops, noticed same effect; confusion of head was more perceptible, but did not last any longer. Pulse after both doses remained unaltered. (*Ibid.*)

30. SIEBENHAAR, after dose of 10 drops, taken May 22nd, 1824, 8 a.m., was perceptibly indisposed, for at 9 o'clock dull headache, attacking forehead and temples especially, came on, ceasing towards 11 a.m. Found pulse at first somewhat stimulated, later on somewhat slower than usual. (*Ibid.*)

31. JÖRG, on May 21st, 1824, at 8 a.m., took 8 drops; "4 m. afterwards scraping in larynx, slight pressure in forehead, confusion of head and slowing of pulse by about 5 beats resulted. Towards 11 all effect had ceased except laryngeal affection; towards afternoon scraping feeling was succeeded by increased secretion of mucus in larynx. On 22nd, at 8 a.m., took 12 drops in ½ oz. of water; besides foregoing symptoms, from 9 to 11 felt numerous fleeting stitches and variably lasting pains immediately below l. nipple in thorax, causing inspiration and expiration to be considerably oppressed. 23rd, 8 a.m., 14 drops taken in ½ oz. of water: this produced not only weight, but also confusion of head and of common sensation for about an h.; during afternoon and e. lassitude and drowsiness, and following n. very sound and deep sleep, after which I rose with difficulty in the morning, feeling as if I had not slept enough. 24th.—Experimented with 16 drops, and experienced tipsy feeling in brain, confusion of head and of whole body, but neither greater nor lasting longer than previous day; lassitude and weariness were less troublesome than after smaller dose. Scraping in larynx was most troublesome, causing, within 15 m., hoarseness which lasted whole d., and in e. and during whole of succeeding d. increased secretion of mucus in air-passages, especially in larynx. I must not omit to mention that the cold, wet, stormy weather of most of the days on which these experiments were made may have predisposed the air-passages to inflammatory affections." (*Ibid.*)

32. LEMBKE took of the 2nd trit. (1 to 50) of Kali cyanatum 1 gr., increasing up to 8 gr., of the 1st trit. 3 gr., then the same day 10 gr., the following day 35 gr.; then of a solution of 1 gr. in 1 drachm water, increasing up to 20 drops. When triturating he felt heat in head, stupefaction, twitching stitches in heart on expiration, breathing superficial; all these lasted 3 h. As the medicine seemed to have become decomposed before it was used he does not give the full list of the symptoms observed. They were chiefly: pain in various joints and muscles, stitches in heart and lungs, oppression of chest, general exhaustion, pulse often 15 beats slower; moving about in open air removed the symptoms. (*Allg. h. Z.*, xlix, 179.)

33. Mr. —, æt. 26, in good health and of simple habits. *a.* Took gr. j of 3rd cent. trit. of Kali cyanatum Dec. 13th, 1859, and repeated it n. and m. until 15th. On this day had, just after rising, sharp stitch in r. shoulder, recurring several m. in succession; also felt at other times, though less marked. Sleep was restless for some

nights, dreamful for two. For 2 d. desire to find fault; drowsiness almost uncontrollable in room; cold open air restores natural humour.

b. Dec. 15th, 1860, took gr. j of 1st cent. trit. at 10 a.m., and repeated dose n. and m. for 4 d. On 17th, on movement in open air, shooting pains about eyes, and later dull pressive pain there, also very marked weakness in loins and iliac regions, with dull pains in latter; restless, dreamful sleep all n. On 18th lumbar weakness continues, and r. knee is seat of frequent twitches, becoming continued pain. On 19th lassitude all forenoon, becoming moroseness in e.; he carries on a kind of conversation with himself, as if quarrelling with someone. This state of mind is really painful. Throughout proving he was easily provoked, and impatient at trifles. In night dreams horrid and exciting, with partial waking and turning between them. Symptoms then passed off.* (*Publications of Mass. Hom. Soc.*, 1861-2.)

II. *Poisonings.*—1. A girl, æt. 22, swallowed by mistake a dose of prussic acid, equivalent to a little less than a grain of the pure poison. At the time this was taken she was sitting on a chair, but she instantly jumped up, ran for a short distance holding up her arms and gasping as it were for breath; she then fell, became insensible, and was violently convulsed, muscles of face undergoing great distortion, limbs becoming spasmodically extended, and head drawn on shoulders. In this state she was removed to bed, and was seen directly afterwards by Mr. Watson, who found her lying on back, with body drawn a little forwards; limbs fixed and extended in tetanic spasm; whole face swollen, turgid, and almost purple from congestion; jaws clenched; mouth covered with foam; eyes half closed, but prominent and glistening, with pupils widely dilated, and quite insensible to light. She was breathing slowly, with deep prolonged inspirations, and uttering a moaning noise. Pulse at wrist could not be felt, although the heart still continued to beat with a feeble fluttering effort.

The symptoms so closely resembled an epileptic fit that the medical men who were called in supposed at first that the patient was labouring under such an attack; but soon discovering that she was suffering from the effects of h. a., they instantly adopted means for her recovery, but without the least avail, for the breathing became slower and slower, the limbs at this time remaining fixed and immoveable, and she died in from 15 to 20 m. after ingestion of poison.

The post-mortem appearances in this case were as usual in poisoning by h. a. The cerebral vessels, both upon the surface and in the substance of the brain, were full of black, fluid blood; the lungs were highly congested; the cavities of the heart full of black, uncoagulated blood. (LETHEBY, *Pharm. Journ.*, iv, 510.)

2. A gentleman, æt. 31, had been taking h. a. for a gastrodynia, and gradually increasing the dose, till on 5th d. ʒiss had been taken, without effect of any kind. On the 6th d., he swallowed ʒij of the dilute acid of the Dublin Pharmacopœia (1·6 per cent.). In 2 m. after taking this quantity, he experienced a sensation of extreme bitterness in the mouth, and having walked a few paces, was affected with great confusion, headache, and loud ringing in the ears. He now with difficulty retraced his steps; and leaning forward on a table, became insensible. His thighs became rigid, and were drawn up upon th

* The second prover's health was too variable for his symptoms to be taken as trustworthy.—EDS.

abdomen; and as he was about falling backwards he was caught and placed on the ground. The upper extremities were then observed to be also rigid; and on drawing them from the side they forcibly reverted to their former position. The eyes were shut, the teeth clenched, and the muscles of the face violently convulsed. After remaining in this state 3 or 4 m. rapid recovery took place under the use of ammonia; but pain and feeling of distension in head continued for remainder of day. (GEOGHEGAN, *Dub. Med. Journ.*, Nov. 1835.)

3. A man had taken for 2 mos., on account of chronic catarrh, ten drops of Ittner's acid daily, without experiencing the slightest toxicological effect. At length he was found one morning in bed apparently labouring under the poisonous operation of the acid. He had headache, blindness, dilated insensible pupils, feeble, irregular pulse, occasional suspension of the breathing, and rapidly increasing insensibility. Cold affusion and ammonia were immediately resorted to, and at first with advantage. But in no long time spasms commenced in toes, and gradually affected rest of body, till at length violent fits of general tetanus were formed, lasting for 6 or 10 m., and alternating in the intervals with coma. Venesection was next resorted to, after which the spasms were confined to the jaws and eyes. Delirium succeeded, but was removed by a repetition of the blood-letting. At 4 p.m. he was tolerably sensible; during the n. delirium returned; at 10 next m. he recovered his sight; and on subsequent m. had no complaint but headache and pain in the eyes. (CHRISTISON, *Poisons*, 3rd ed., p. 702.)

4. A medical man, practising in Rennes, took at 7 p.m., at a druggist's, a teaspoonful of Vauquelin's (3·3 per cent.) acid. As he was leaving shop he felt a disquieting confusion in head; he turned round, spoke a few words, and fell suddenly down. They gave him ammonia, but only a few drops could be taken, for the teeth were tightly closed. An ever-increasing dyspnœa set in, with noisy rattling respiration, cold extremities, distorted mouth; r. pulse (naturally stronger with him) very small, l. imperceptible; face red, and as if swollen, as was also neck; pupils fixed and dilated. The trismus increased, with some opisthotonos; and after an h. there followed a smart tetanic convulsion lasting several m. The abdomen was distended, and seemed even visibly to increase in size. They applied friction with blistering fluid, ammonia, and sinapisms. With great trouble mouth was opened by means of an iron spoon, and throat tickled with a feather; by succeeding vomiting dark mucus was evacuated. Coffee was now given, with oil of turpentine, and ice laid on head. During this time thumbs were frequently carried to mouth. After 2½ h., signs of returning consciousness. The patient said, "I have taken prussic acid—I commend my son to your care—give me air and let me die." He recognised those standing around, and asked for coffee, but could not drink it, as his mouth had been much hurt by the remedies used. Intelligence gradually returned. The subsequent symptoms were those of pulmonary catarrh, traceable to the frequent and strong ammonia inhalations to which he had been subjected. (*Revue Médicale*, 1825, i, 265.)

5. Incidental effects of reputed medicinal doses are—irritation of

throat and windpipe; increased flow of saliva; sense of heat in epigastrium, diffusing itself over whole abdomen, and even to entire surface; constriction and heaviness of head; dizziness; buzzing in ears; headache; numbness; duskiness of countenance; staggering; laborious respiration; constriction of chest; often palpitation of heart; inclination to vomit, but sometimes feeling of emptiness in stomach, and craving for food; a quick and excited or unusually slow pulse; and, for some h. after these symptoms, sense of weariness and inclination to sleep. (STILLÉ, *op. cit.*) An over-dose will in every person excite nausea, vomiting, and pain and tightness at the præcordia. Even applied externally, it has caused nausea, vomiting, vertigo, and syncope. It appears therefore to act specifically on the stomach. (ELLIOTSON, *Cases illustr. of efficacy of Hydr. ac. in Affections of Stomach*, 1820.)

6. In peculiar constitutions the minutest quantity, even a single (bitter) almond, will cause a state resembling intoxication, succeeded by an eruption like nettle-rash. The late Dr. Gregory was subject to be affected in this way. Other vegetable bitters had the same effect upon him, but none so remarkably as bitter almonds. They caused first sickness, generally tremors, then vomiting, next a hot fit with an eruption of urticaria, particularly on the upper part of the body. At the same time the face and head swelled very much, and there was generally a feeling like intoxication. The symptoms lasted only for a few hours. The rash did not alternately appear and disappear as in common nettle-rash. (CHRISTISON, *op. cit.*) This effect is due to the presence of hydrocyanic acid in the almond, as is proven by the fact that solutions containing this acid, such as bitter-almond and cherry-laurel water, very easily produce the same incidental effects. (LEWIN, *op. cit.*)

7. Sir B. BRODIE once happened to touch his tongue with the end of a glass rod which had been dipped in the essential oil of bitter almonds. He had hardly done so before he felt an uneasy, indescribable feeling at the pit of the stomach, great feebleness of the limbs, and loss of power to direct the muscles, so that he could hardly keep himself from falling. These sensations were quite momentary. (*Philos. Trans.*, 1811, p. 183.)

8. A gentleman, æt. 48, swallowed ʒij of oil. A few m. afterwards, his servant found him lying in bed, with features spasmodically contracted, eyes fixed, staring, and turned upwards, chest heaving convulsively and hurriedly. A physician, who entered room 20 m. after draught had been taken, found him quite insensible, pupils immovable, breathing stertorous and slow, pulse feeble and only 30 in m. Death ensued 10 m. afterwards. (MERTZDORFF, *Journ. Complem.*, xvii, 366.)

9. A man, æt. 20, took instead of an ordinary draught an unknown quantity of cherry-laurel water. Two m. after taking it, a rattling or gurgling was audible in stomach; in 10 m. he seemed inclined to doze; in 5 m. more he was found quite insensible, with eyes fixed upwards, teeth locked, froth running out of mouth, and great heaving at stomach and gurgling in throat. He died ½ h. after swallowing draught. (CHRISTISON, *op. cit.*)

10. Small doses (10 drops) of cherry-laurel water may excite tickling

in throat and increased flow of saliva. If dose be somewhat increased, or if small doses be frequently repeated, nausea, vomiting, dizziness and headache appear not unfrequently; with sensation of giddiness may be associated buzzing in ears, difficulty of respiration, and great weakness. (LEWIN.)

10. A child of seven, having eaten in m. a score of almonds, with peaches and apricots, was seized in middle of day with general malaise, violent headache, and buzzing in ears, formication in legs and staggering. He was taken to his relatives presenting the appearance of drunkenness. Put to bed, he was soon seized with faintings, which were prolonged, and caused much anxiety. Stimulating frictions and an antispasmodic mixture caused disappearance of symptoms in e., and patient was well next m. The reporter had no hesitation in ascribing the symptoms to hydrocyanic acid. (*Bull. de Thér.*, iv, 99.)

11. A man swallowed by mistake gr. 23 of cyanide of potassium. In 2 m. he became senseless. Respiration was slow and laboured; pupils dilated and fixed; eyes open and protruding; conjunctivæ slightly injected; face and neck congested and livid, veins being very prominent; skin of head hot; temperature of extremities normal; pulse full, bounding, regular, and rapid. Muscles at first relaxed, but afterwards convulsive movements of limbs took place, followed by rigidity and slight opisthotonos, pupils becoming contracted and fixed, and pulse very feeble. Whole convulsive paroxysm lasted about 1 m. By e. he had almost completely recovered, and on following day felt perfectly well. (*Boston Med. and Surg. Journ.*, lxxiv, 311.)

12. The p.-m. appearances in cases of poisoning by H. acid are the following:—Glistening and staring expression of eyes (not constant); venous system usually gorged with blood, while arteries are empty; blood, in many cases, fluid, dark, or bluish-black, not viscid, nor oily; vessels of brain and spinal marrow frequently gorged with blood, and cerebral vessels sometimes containing a serous or sanguineous liquor; lungs in some instances natural, in others tinged with blood; internal lining of stomach sometimes red. (PEREIRA, *op. cit.*)

III. *Experiments on animals.*—1. H. acid affects all animals indiscriminately. From the highest to the lowest in the scale of creation, all are killed by it; and all perish nearly in the same manner. Such is the result of a very extensive series of experiments by Coullon. (*Christison.*)

2. The best experiments with the concentrated acid are those of Magendie, who says that if a single drop be put into the throat of a dog, the animal makes two or three deep, hurried inspirations, and instantly drops down dead; that it causes death almost as instantaneously when dropped under the eyelid; and that when it is injected into the jugular vein the animal drops down dead at the very instant, as if struck with a cannon-ball or with lightning. (*Ibid.* In Christison's own experiments the time of action was from 5 to 63 sec. after administration, and that of death from 30 to 105 sec.)

3. In the slower cases there were regular fits of violent tetanus; but in the very rapid cases the animals perished just as the fit began to show itself with retraction of the head. When an animal is poisoned

with a dose not quite sufficient to cause death, it is seized in 1 or 2 m. with giddiness, weakness, and salivation, then with tetanic convulsions, and at last with gradually increasing insensibility. After lying in this state for some time the insensibility goes off rapidly, and is succeeded by a few attacks of convulsions and transient giddiness. The whole duration of such cases of poisoning sometimes does not exceed half an hour, but may extend to a whole day or more. (*Ibid.*)

4. The external phenomena due to the action of prussic acid are especially centred, in all warm-blooded animals, in disturbances of the respiratory movements; these are either more or less quickly abolished, or are excessively retarded. As a rule, the typical poisoning case commences with ten or twelve unusually hurried respirations, which are immediately succeeded by an attack of tetanic convulsions,* during which the diaphragm remains contracted and immovable. Should the animal not die, as it generally does, in this attack, then all the muscles become relaxed, and deep breathing succeeds with very short inspirations, strikingly long expirations, and unusually long intervals between the individual breaths. If the animal recovers, these respiratory pauses gradually give way to more natural breathing; but if it does not recover, death ends the scene in less than an hour, without any fresh convulsive attack. The blood-pressure and pulse-frequency, after being slightly increased for a few seconds by prussic acid, become considerably lessened. But it is by no means easy to kill the heart by doses of prussic acid. If death by asphyxia be hindered by artificial respiration, even when enormous doses of the acid were given, the heart beat regularly, though rather slowly, until the animals finally recovered from the poisoning. (BOEHM, *Ziemssen's Cyclop.*, vol. xvii.)

5. The spinal cord of a dog was divided between the last dorsal and first lumbar vertebræ, so that the hind legs were completely paralysed and insensible to mechanical irritants. H. acid was then introduced into one of the hind legs: in one m. symptoms of poisoning commenced; the hind as well as the fore legs were violently convulsed, and in twelve m. the animal was dead. (*Wedemeyer*, in Pereira.)

ACIDUM LACTICUM.

Lactic acid, $HC_3H_5O_3$. Result of fermentation of sugar of milk.

I. *Provings.*—1. F. R. took several doses of 1st dil. Experienced only sense of fulness in forehead, as if brain were too large, during d.; and in e. therewith slight headache, a dull pain on both sides of forehead.

2. —— on two occasions took same. On both had much nausea, persisting for days. On first also diarrhœic stool, causing hurrying; and soreness to touch along r. sciatic nerve, on getting out of bed, lasting all day, and pulsating constantly but slightly. On second pupils were dilated; tongue sore on l. side, raw and red; rheumatic pains affected both shoulders, running up muscles of neck to mastoid processes, and into ears; and there was sensation as if feet were perspiring copiously.

* "We consider the convulsions of prussic acid poisoning as the expression of a transient but energetic irritation of the central apparatus of the brain and spinal cord."

3. S. took one dose of 1x dil. His symptoms were: mouth constantly full of water, worse after each eructation; saliva salt, like brine, for several d.; fulness of fauces, with intense burning in throat, fauces, and œsophagus, in latter especially after eructation, which caused also qualmy feeling; the eructations were frequent, burning hot gas or acrid fluid coming up, and spasmodic ringing cough resulting from the irritation produced. There was burning and weight in the stomach, aggravated by tobacco, as were also the eructations. (T. F. ALLEN, *N. York Journ. of Hom.*, i.)

II. *Poisonings.*—1. A man, æt. 31, suffering from diabetes, never had rheumatism. Lung symptoms manifesting themselves. On March 8th took as medicine 15 ♏ of l. acid 4 times in d. On 9th took 30 ♏ in m. In afternoon had acute pains in joints and flying pains about limbs. In e. pains increased; medicine discontinued. 10th.—No medicine. Pains gradually ceased. 11th.—Repeat acid 15 ♏ ter die. 12th, e., pain in joints. 13th, m., small joints of fingers of both hands, wrists, and in less degree elbows, were noted as being red, swollen, and painful. E., small joints of fingers, both wrists, and elbows, all red, hot, swollen, tender, painful. Heart-sounds clear. Temp., m. 100° F., e. 101° F. Pulse 90, soft and full. Moderate perspiration. Discontinue l. acid. 14th, m., decided improvement in all joints. Swelling less, heat and pain still present. T. 100°, P. 84. E. All joints of fingers much better, wrists still affected. Good deal of pain in knees, which had hitherto escaped. T. 100·8°, P. 90. 15th, m. T. 98·6°, e. T. 99·4°. Joints better. 16th.—Arms quite well, legs nearly so. 17th.—All pain gone. T. 98·2°, P. 72. Mar. 29th.—75 ♏ of acid in 20 oz. of water, to be taken as a drink in 24 h. No pain for 5 d. Pulse rose 12 per m. on and after 3rd d. Temp., previously elevated by lung complications, showed no change on 4th and 5th d., remaining at 99°, instead of varying as usual for some time previously. After midnight of 5th d. pains in joints came on. On m. of 6th d. metacarpo-phalangeal and first phalangeal joints of 1st and 2nd fingers of both hands were red, swollen, hot and painful. Pain much aggravated by movement. T. 99·4°, P. 102. Heart-sounds clear. Discontinue acid. E. Pain and redness less. Joints still stiff. No other joints affected. T. 99·2°. April 5th.—Hands much better. Took 30 ♏ of acid in forenoon. E., swelling, redness, and tenderness returned in knuckles. Discontinue acid. 6th.—No pain. Took 45 ♏ up to 4 p.m. At 9 p.m. swelling in knuckles and left wrist. No more acid for 2 d. Joint symptoms gradually disappeared. Resumed on 9th to 13th 35 ♏ acid per diem. No symptoms till night of 13th, except flying pains about joints, then disturbed by severe pain in r. wrist, which in m. was red, hot, swollen and painful. P. 98, full and soft. Copious perspiration, acid reaction. Elbows and knees stiff next day. In 4 d. little stiffness in r. wrist only remained. The acid taken again in a week with like results. Continued for some weeks taking 20 ♏ per diem, and stopping a day or two. No pain. Early in June took 40 to 50 ♏ per diem. Two sharp attacks as before in the month. At end of month took 75 ♏ daily, increased to 100 on July 6th. On July 7th had pain and stiffness of joints, aggravated by walking. 8th. These symptoms worse in e., wrists and elbows very stiff and painful. Knees less so. T. 100·6°. Stop acid. Well by 10th. Took on this day 100 ♏ of acid, with result similar to last. In addition had pain in l. side. Heart-sounds clear. All pain subsided by July 17th. (BALTH. FOSTER, *Clinical Medicine*, p. 144.)

2. Another man, suffering from diabetes; never had rheumatism. Took 30 or 40 ♏ of lactic acid per diem. On 4th d. had sharp pain in r. knee, with stiffness, aggravated by walking. Severe pain in other joints. No swelling or redness. Skin soft and moist. Discontinue acid. Pain gone in 2 d. On subsequently resuming acid for a week, was laid up with severe pain in elbows, shoulders, ankles, and knees, all aggravated by movement. Swelling and redness only in r. knee. Free perspiration. P. 96, full and soft. Discontinue acid. Well in a week. (*Ibid.*)*

III. *Experiments on animals.*—1. Injection of ʒvij of l. acid into peritoneal cavity of a healthy cat produced during life irregular and irritable action of heart; the beats could not be counted. After death liver, kidneys, and lungs were found congested. The blood in r. heart dark, slimy, soft, and cheesy. The mitral

* Kuelz also has observed the same phenomena in a diabetic who was being treated with the acid (*Beiträge zur Path. u. Ther. des Diabetes*, ii, p. 166).

valve greatly thickened, red and œdematous. Small fibrinous deposit adhering to surface of valve. Exudation of glutinous fluid on puncture with needle. Endocardium of l. ventricle intensely vascular, appearing like bright red velvet. Pericardium dry and slightly injected.

2 Injection of ʒj or ʒij into peritoneal cavity of six dogs, repeated after a few d. in instances where life was prolonged. During life indications of pain in all joints in 3 instances. In one instance pain and tenderness over region of heart. In all beats of heart were sharp and quick, second sound prolonged, first obscure Where life was prolonged a soft murmur was noticed on 4th d., and a loud systolic bruit on 5th. In one instance there was slight intermission of pulse. After death, where it had occurred the first day or two, was noticed passive congestion of lungs with hyperæmia of the upper lobe; pericardium dry, vessels finely injected; endocardium, r. side normal, one segment of tricuspid swollen several times beyond natural size, the thickening bright red, irregular; l. side brilliant red and velvety in appearance, segments of mitral valve thick, œdematous, bright red, with beads around their free margins. Aortic valves deep red. Muscular structure unusually red. If life had been prolonged to 3rd or 4th d., on pericardium over l. ventricle there was exudation of plastic lymph; the mitral valve was thickened and pale from exudation of lymph. In one instance the anterior curtain was adherent to the heart-wall. The aortic valve slightly thickened. In one instance there was exudation into the pleural cavity. (B. W. RICHARDSON, *Cause of Coagulation of Blood*, Appendix.)*

ACIDUM MURIATICUM.

Muriatic acid, hydrochloric acid.—An aqueous solution of hydrochloric acid gas (HCl) obtained by submitting a mixture of chloride of sodium and sulphuric acid to distillation, and condensing the gas which passes over in water. Sp. gr. should be 1.7. (*Brit. Pharm.*)

I. *Provings.*—1. HAHNEMANN, *Materia Medica Pura*, vol. v of original, vol. ii of English translation. Contains 61 symptoms from self, 196 from six fellow-observers, and 22 from authors.

2. IBID. *Chronic Diseases.* Part iv of original, vol. of translation. The same, with some additional symptoms from author and Rummel, and from

3. NENNING. Hartlaub and Trinks' *Arzneimittellehre.* (Translated in *Annals of British Homœopathic Society*, App. to vol. x.) Incorporated, so far as deemed valuable, in pathogenesis of *Chronic Diseases.*

4. In small doses, medicinal muriatic acid occasions an agreeable warmth in the stomach, and generally some quickening of the pulse, cheerfulness, flushing of the face, and an increased flow of urine. Its protracted use sometimes occasions salivation. In larger doses, it excites the brain in a peculiar manner, causing giddiness, confusion of the senses, a sort of intoxication, in fine. (STILLÉ, *Mat. Med.*, sub voce. To the same effect PEREIRA.)

II. *Poisonings.*—In the few cases that have been observed, the symptoms were those of pure local corrosion. (See ORFILA, *Toxic.*, one case; QUEKETT, *Med. Gaz.*, xxv, 285.)

III. *Experiments on animals.*—When dogs are made to swallow the

* Senator (Ziemssen's *Cyclopædia*, xvi, 26—28) states that Rauch also thought himself to have obtained similar results, but that Möller and Reyher have proved either to be erroneous.

strong acid (6—8 grms. in small dogs) they at once experience a great failure of strength, they exhale by the mouth and by the nose thick vapours of the acid. They vomit after some minutes brown-greenish stringy matters, as if bilious. They raise plaintive cries, and die in 4 to 6 h. Death is almost always preceded by convulsive movements of violent character, especially in muscles of neck and spine. In some cases these organs are so strongly contracted that the head is drawn backwards, and forms with the spine a curvature of remarkable concavity. On opening stomach one finds the mucous membrane inflamed, and of a cherry-red colour all over. Sometimes near the pylorus the mucous membrane shows stains of a black or exceedingly deep red colour, which are true eschars, and which might be taken for masses of black blood extravasated on the mucous membrane. Sometimes finally one notices holes in the places which correspond to these eschars, and then there is an effusion into the belly of acid and blackish liquids. The other viscera present no changes of note. (ORFILA, *Toxicologie*, sub voce.)

ACIDUM NITRICUM.

Nitric acid, NO_5.—Result of distillation of natural nitrate of soda or potash (hence old name, Nitri acidum) with sulphuric acid.

I. *Provings*.—1. HAHNEMANN, *Chronic Diseases*, Part iv of original, vol. of English translation. Contains 1424 symptoms, of which about 1200 are his own, 200 from fellow-observers, and 30 from authors.

2. In Sept., 1793, I began to take nitric acid. On the 11th, took at different times about ʒj of strong acid diluted with water. Soon after taking it felt sense of warmth in stomach and chest, but no disagreeable sensation or other material effect. On 2nd d., took considerable quantity of diluted acid, as much as could easily be drunk in forenoon, and continued so to do for 4 d. more. On 3rd d. felt gums affected; they were somewhat red and enlarged between teeth. Slept ill, but could lie for length of time on l. side, which, from some affection of liver, had not been the case for many months before. Pain at back of head resembling that which I have commonly felt when taking mercury. On 4th d., gums a little tender. Pain still in head, and also about jaws. On 5th d., slight salivation. On 6th d., yet more, and mouth sore. On 7th d., mouth so troublesome that I shall take no more acid. On omitting it, mouth gradually got well. (SCOTT, *Duncan's Annals*, i, 379.)

3. 11.30 a.m. Health normal, pulse 78, regular; took 10 drops of fuming acid in half glass of water (℥ij). Soon pressure and heaviness in forehead, with darting pains in ears and vertigo. Can walk straight only by an effort. These symptoms attended by chilliness and nausea. 12. Nausea increased to vomiting, with pain in mouth, throat, and stomach. Vision obscured. Eyes feel hot and excoriated. Feeling of intoxication continues: vomited once only, but repeated and constant retching followed. 12.15. Burning pain in bladder and

call to urinate; urine scalding. 12.30. Urinated again, scant and hot. During aft. repeated urination, odour strong. Towards e. drawing pains in back and loins. Pulse 68, weak. 5.30. Desire for stool, no relief. 7. Difficult stool with straining and burning in rectum. 2nd d.—Sleep was restless and uneasy; waked with pain in head and cervical region. Chilliness and shuddering even when near hot stove (temp. and pulse not taken). 7 a.m. Passive epistaxis, dark blood. Desire for stool, no relief; urinary symptoms continue. 11. Rheumatic pains and drawing from knee to groin, with soreness of testes. 12. Indisposed to read or study. 3rd d.—Pulse slow and irregular; feel very languid with continued chilliness: two diarrhœic stools during morning, with tenesmus; occasional loose cough. 4th d. —Dark red papular eruption in clusters on various parts of trunk and neck, with soreness and itching: this continued for nearly a week. Otherwise well. (W. H. WILLSON, M.D., *communicated.*)

4. 10 a.m. Health good, pulse 76; took 18 drops of 1x in water. 10.15. Fulness of head with dull headache. 10.30. Increased pressure in head with inability to apply mind; face pale; veins turgid and swollen. 10.35. Respirations laboured and impeded; surface of body cold to touch. 11. Drowsy, with neuralgic pains in r. supra-orbital region and ear. 11.15. Passed normal urine (unusual hour); hands and feet cold and sweaty (no cause). 11.30. Urinated again, scant and strong odour. 12. Pressure in head and neuralgic pains continue, with wavering of objects before the eyes. Mouth and lips dry; tongue feels scalded, tip and edges very red. 12.30. Fulness and oppression of chest and epigastrium is somewhat relieved; normal warmth has returned. 2nd d.—Restless and sleepless at night: waked with full pressing headache involving eyes. Desire to urinate was frequent, and flow irritating for 2 d. following. Otherwise seemed well. (R. H. CURTIS, M.D., *communicated.*)

5. Mrs. —— took one m. a few drops of the dilute nitric acid of the B. P. In afternoon, slight aching in both feet and legs up to hips; felt as if she had taken cold in them. Woke early next m. with deep-seated bitter coldness of same parts and deep-seated feeling as if dogs were gnawing flesh and bones, and as if sinews were being pulled up. All these sensations worse in feet and thighs. Kept her awake rest of night; not relieved by position or movement, relieved for time by hard rubbing. After breakfast they suddenly disappeared, leaving parts tender to touch, and as if clothes were too heavy for them. With the coldness there was chattering of teeth for 1 h. Towards m., also, there was violent pain like throbbing or hammering on l. side of head, coming on gradually. It began near vertex, descending to region of l. ear; then went gradually over vertex to r. side of head, but still worse on l.; not relieved by warmth of flannel. She felt as if she could beat the head to pieces. It gradually diminished, and about breakfast left her entirely. After rising, but before breakfast, great nausea in stomach as if going to retch, but without retching or vomiting, lasting till she fell asleep. After breakfast, for about 1 h. (other pain having ceased), feeling as if head were in a vice from ear to ear, over vertex, arising and departing gradually.

Afterwards felt as if she had no head; it felt light on her shoulders, numb, or as if made of putty. For about 1 h. painless lumps in calves about size of half a walnut. Again fell asleep; on waking felt hungry and thirsty, and took second breakfast, after which she was quite well. (BERRIDGE, *N. Am. Journ. of Hom.*, xxi, 101.)

6. In small quantities, the diluted acid excites the appetite, increases the secretion of a light-coloured urine, causes a whitish coating on the tongue and dryness of the mouth; about the fifth day after commencing the use of the acid, the teeth begin to become loose, the gums bleed, in some cases ptyalism sets in. The continued use of the acid is followed by digestive derangements, colic, fœtid breath, headache, languor, constipation or diarrhœa. (WIBMER, *Wirk. der Arz.*, sub voce.)

7. A small pustular eruption sometimes appears upon the skin. Bateman, who gave the acid in a diluted form for hepatic derangement, found that it produced salivation, but neither fœtor of the breath nor ulceration of the gums. But all these symptoms existed in several of the cases (syphilitic) reported by Prioleau. This salivation would appear not to depend upon the local action of the acid, if we may accept the statement of Richter, who found the same effect produced by nitric acid baths. (STILLÉ, *op. cit.*, sub voce.)

II. *Poisonings.*—1. A girl, æt. 17, in good health, took about ℥j—ʒss of strong nitric acid. Burning pains set in in mouth, throat, and epigastrium, then vomiting, going on for several days and expelling bloody masses. On 2nd d. dysenteric symptoms appeared; frequent evacuations, sanguinolent, with pains and tenesmus. From this time urine remained suppressed. On 3rd d., admitted to hospital. Usual signs of corrosive action of acid on mouth and throat were present; abdomen soft and not distended; in epigastric and both iliac regions pains increased by pressure. Resp. 16, pulse 96, temp. 30 R. (= 99½ Fahr.). On next two days motions more frequent and now semi-membranous, bladder empty, pulse 84—100; resp. 20—24; temp. 29·2°—28·6°. Patient became paler; now calm and apathetic, now anxious; quite sensible, but occasionally complaining of headache. On 8th d. stomach seemed full of fluid, and vomitings occurred, with anxiety and finally delirium. Temperature fell to 27·8° (under 95° Fahr.) on 7th d., and on 8th she died. At p. m. usual local lesions were found as far as stomach, but small intestines were free. Large intestines throughout exhibited the appearances of intense dysenteric inflammation, and kidneys those of acutest form of Bright's disease.* (WUNDERLICH, *De Act. quibusdam Acidi Nitrici caustici in corpus humanum intromissi.* Lipsiæ, 1876.)

2. A man drank freely of a weak solution of nitric acid in mistake for water. Within a few m. a deadly and intolerable nausea came on, which, within ½ h., ended in vomiting. After this he felt better for some time, when pain, griping and flatus succeeded; and about 15 h. after taking dose, tenesmus and bloody stools occurred, succeeded by headache and fever. These dysenteric symptoms lasted 2 d., and

* Wunderlich in his conclusions calls attention to the claims made by homœopathic physicians as to the usefulness of nitric acid in dysentery, and to the repute it enjoys in Bright's disease in ordinary practice.

gradually went off, no medicine having been taken. (WALTERS, *Med. Repository*, ii, 337.)

3. As nitric acid gas begins to be developed, there is a prickling, tickling sensation in nose, with frequent sneezing; as gas increases in quantity, lips feel as if covered, and give very sour taste when touched with tongue. On being inhaled, it causes a constant and violent cough, with whistling inspiration, redness and sweat of face and body; the paroxysm of cough increases so much by continued inhalation of the gas, that it causes a taste of blood, nausea, and actual vomiting of mucus and food. Longer exposure to gas causes oppression of breathing and anxiety, so that it becomes necessary to leave the room in order to breathe freely and silence the cough. There remains behind, for ½ h. to 2 h., great rawness, soreness, and weariness of chest, with pains in head. (LEDERER, *Allg. hom. Zeit.*, li, 148.)

4. *a.* From exposure to n. ac. fumes (which proved fatal in another case) a young man suddenly felt exhausted and pressed for breath; fell, and began spitting green slimy matter, having at same time pains as if prodded with some sharp instrument in head, face, and body. Going home drank freely of cold milk, and next day went to business. Was soon seized with violent vomiting, with pricking pains in head, face, lips and gums, and sharp aching in jaws. Returned home and went to bed; had sense of horrible constriction across lower chest, with dyspnœa and incessant cough, bringing up greenish, slimy sputa; great nausea, with unquenchable thirst, drinking causing increase of pricking pains in stomach, and vomiting; sensitive to slight noises, which cause shocks in head; swelling of lips with burning pain; dull pain in bones of head; painful, raised papillæ on tongue; aching in limbs; delirium, fancying himself suddenly rich, &c.; ugly raving. On 3rd d., patient was beside himself with fancies; angry at attendants; slightly delirious; there was constant spitting of green mucus, and about every 15 m. vomiting of same, followed by neuralgic pains in gums, teeth and jaws, and throat; throat raw, with smarting sensation down œsophagus; burning in chest, and sense of severe constriction; catching of breath at every attempt at a full inspiration; muscular soreness through intercostal spaces; severe pain in hypochondria in m., passing up walls of thorax, coming together at upper third of sternum, causing a terrible fit of coughing after about 20 m., lasting some 10 m., with bursting headache, and pricking pains in face and temples, &c.; sharp cutting pains all through abdomen, centring at stomach-pit; about once an h. terrible cramps in abdomen, not relieved by stools of black fluid, which occurred about every 15 m.

b. I was called to the patient on the evening of this, the 3rd d., and finding the vomiting and purging to be accompanied by feeble and irregular pulse, cold, moist surface, and symptoms of œdema of the lungs, I gave veratrum viride 1x in water, a teaspoonful every ½ h., except when sleeping, throughout night. Sept. 19th, which was the 4th d. after the accident, I found diarrhœa controlled when I called in m., and by noon vomiting had ceased, he continuing the veratrum viride as before. At this time he presented several objective symptoms of interest: lips swollen to twice their natural size; blisters and swollen

papillæ on the dry, brownish-hued tongue; pallid, bluish-coloured face, which was pinched; eyes wild and staring, with dilated pupils; great restlessness, patient tossing and rolling about in the bed, and frequently getting out of bed to sit or walk the floor; gait weak and staggering. There was ringing in ears, with stopped-up feeling, and for a few moments, after trying to sing, marked deafness; after cessation of vomiting belching of great quantities of gas, accompanied by aggravation of sharp, pricking pains in stomach; constant sour taste in mouth; violent pains in face, pricking on lying down, better on rising; drawing pains under both scapulæ, with constriction of chest as by a rope drawn tightly around lower part of it; coughing violent, spasmodic, ineffectual, ending in gagging; great weakness and languor; first appearance of pain in the lumbar region; urine like brandy, but not strong in odour; later, and after several days more, it became somewhat more abundant than normal, and straw coloured, with only occasionally an hippuric odour, scarcely noticeable; sp. gr. not taken; ravenous hunger, dissatisfied with milk and gruels; horrible thirst. 5th d.—Unconquerable drowsiness all day, waking with canine hunger; thinks he is going to die; frightened feeling; lips somewhat swollen still; some epistaxis; eyes smart; severe lachrymation; small ecchymoses and papulæ appear here and there and disappear again; crawling sensation all over the body, with sticking pains. 6th d.—Symptoms of convulsions, such as subsultus, twitching of facial muscles, with distortion of visage; slight wandering of mind; tossing about in bed; insatiable thirst; bursting headache, with soreness of scalp, as from ulceration; relief of head symptoms by tying head up tightly; constipation, with pricking, cutting pains at anus during stool, which was hard and dry. On this and the two preceding days the patient received bryonia 3x in water every h. 7th d.—General improvement in all symptoms except those of lungs. Great distress for breath, and some dulness on percussion over lower parts of chest, back and front, with dulness of respiratory murmur; considerable raising of frothy mucus, with rawness of chest on coughing. 8th d.—Raised about an ounce of bright blood this afternoon while coughing, after which he breathed with more ease. Thirst nearly gone; appetite more normal; flatulence gone; less pain about the head and body. 9th d. —No especial change, except a gradual subsidence of symptoms on bryonia 3x. 11th d.—Patient rapidly improving; went out to walk this afternoon; raised about an ounce of blood while coughing; soreness of chest declining, and cough loose and easier. 15th d.—The patient called at the office, and, seeming to feel relieved in all respects, he was discharged from treatment, with bryonia for a few more days and general advice as to exposure, &c.

c. There was at no time any icterus. But his employer, Mr. Codman, who died in a few hours after exposure to the fumes of the acid, grew yellow in less than 3 h. He complained of general malaise, oppression of the chest, drowsiness, and, after eating a little fruit for his noon lunch, gradually sank, and died with his lungs filled with frothy mucus, as shown by the necropsy. (HEBER SMITH, *N. Engl. Med. Gaz.*, Sept., 1884.)

ACIDUM NITRO-MURIATICUM.

Nitro-muriatic (nitro-hydrochloric) acid. A mixture of nitric and muriatic acids, the latter generally preponderating.

I. *Provings.*—1. *a.* Dr. SCOTT took baths of acid, prepared with three parts of nitric to one of muriatic acid, and added to water till latter tasted sour. After three daily immersions of ½ h. each became sensible of odd sensation about gums, jaws, and teeth. Continued bath 2 d. more. On 4th d. some uneasiness on swallowing, and occasional salivation; gums somewhat reddened. On 5th d. pain on swallowing felt all down œsophagus, with burning there and in roof of mouth. On 6th d. mouth somewhat painful and pulse quicker than usual. These symptoms continued in some degree for a fortnight afterwards.

b. Mere sponging skin with acid, sufficiently diluted with water, gives rise to same effects with bathing. When bathing or sponging is carried to a considerable extent, and when system is much under its influence, a sense of weakness comes on occasionally; some nervous irritation and restlessness are felt; a metallic taste (generally compared to that of copper) becomes sensible; a sense of pain occurs in some parts of the palate or mouth, which is not permanent, but comes and soon goes off again. At length little specks or small ulcerations, quite superficial, are seen on interior of mouth and over tongue, so that some degree of excoriation or rawness is at last produced. This is attended by a considerable discharge of saliva, with an increase of the feeling of low ness or depression. There is no fœtor; the salivation is intermittent only; the teeth are never injured. The excoriations soon disappear when the acid is discontinued. It sometimes very suddenly increases the secretion of bile, and this effect may be kept up for a length of time. It increases the perspiration and often to a great extent. I have lately added more and more of the muriatic acid in proportion to the nitric, and the effects have proportionately increased. (*American Med. Recorder*, i, 84.)

2. Dr. J. C. MORGAN, June 30th, 1867, at 6.10 p.m., took 2 drops of 1x dil. (aqueous) in ℥j of water. Immediately sense of pressure or fulness in the parotid, submaxillary, and sublingual glands, in order named, with some increase of saliva. On l. side increased more and more towards zygoma and malar bone; less on r. side. At 11, 1 drop; slept well. July 1st, noon, of solution of gtt. iij in f℥ij of water took a sip, about ʒj; five m. after, while leaning to l. side, sudden sticking ache in l. temporal region, preceded by twitching of anterior fibres of temporal muscle. In ½ h., while writing at a very low table, spasmodic tremulous contractions in pharynx, in the vicinity of the levator palati muscles. On walking in room, 1 h. later, a cramp momentarily felt in hollow of r. foot. 2nd, 1 p.m., took another sip from the solution. Immediately sensation in penis, afterwards in bladder (whilst writing) of desire to urinate; later a sort of languid aching through hips and thighs (front) and small of back (having rested arms on thighs). After a short delay passed a quantity of normal, somewhat pale, urine. Afterwards, while sitting, a glow, with languid feeling, from calf to sole of l. lower extremity, continuing as heat in the sole. Afterwards, sticking in dorsum of r. hand to third knuckle. Afterwards, successively, the same on dorsum of l. forehand and hand, then in back of both thighs when walking, at 7½ p.m. Directly after, while still walking, a sharp, stitch-like drawing pain in

front of r. forearm, beginning, and worst and most persistent, at commencement of biceps tendon, above elbow. (Ate vanilla ice-cream at dessert, 4 p.m.) The pains (especially of upper extremities) recurred quite frequently up to m. of July 3rd. (*Hahn. Monthly*, vi, 186.)

3. Dr. C. WINSLOW. Age 26; temperament bilious. Experimented with nitro-muriatic acid, each dose containing one tenth of a drop. Took first dose at 10 a.m. At 11, slight feverishness, slight frontal headache, with some dizziness. Second dose at 3 p.m. At 4, feverishness continued: peculiar sensations in temples, as if brain were distended; a feeling of pressure on temples; some palpitation of heart. Third dose at 6 p.m. About 1 h. after taking this dose had a slight colic in lower region of abdomen; slept unusually well, and felt the next morning, the 21st, better than usual. August 21st, at 10 a.m., took another dose. Experienced no unusual sensations except some slight feverishness. At 3 p.m., took fifth dose and felt no symptoms, no feverishness. (*Ibid.*)

ACIDUM OXALICUM.

Oxalic acid, $H_2C_2O_4$. Acid principle of sorrel and other plants: prepared on large scale by action of caustic alkalies on sawdust.

I. *Provings.*—1. REIL, æt. 29, in good health and of simple habits. Made concentrated solution of acid in distilled water at 60°, it contained gr. 50 to ʒviij. From this made dilutions with distilled water in proportion of 1 to 8.

a. Sept. 28th, 1849, took at 7.30 a.m., fasting, 20 drops of 2nd dil., and repeated dose in e. Next d. took 30 drops in m. and e. None but slight effects resulted. 30th., m. and e., 40 drops. Oct. 1st, m. and e., 50 drops; 2nd, m., noon, and e., 60 drops; 3rd, m., noon, and e., 80 drops; 4th, m., noon, and e., 100 drops. On 30th had pressive frontal headache, eyes and forehead smarting as if coryza would set in (which it did not). This lessened on 1st and disappeared on 2nd, leaving only aversion to mental exertion. After doses from 40—60 drops much rumbling in belly and increased discharge of flatus. Stools absent or difficult throughout.

b. Took 1st dil. from 5th to 9th inclusive, 20, 40, 60, 80, and 100 drops on successive days, three times a day. On 5th, pain in sacrum all day, relieved after difficult evacuation. Distension of abdomen this d. and next. No stool on 6th; on 7th abundant soft motion covered with mucus, preceded for some h. by frontal headache. Stool the same next d.; on 9th, after previous rumbling in abdomen, copious pappy evacuation with cutting pains. On 8th, empty feeling in stomach; pain across kidneys; at n. unpleasant pinching around umbilicus repeatedly waking him up. On 9th, feeling of lassitude all day.

c. From 10th to 13th inclusive took repeated doses of concentrated solution, from 10 drops to 50, without effect save flatulence and loose stools, with painful griping and twisting in stomach. Oct. 14th.—Took six doses of 100 drops each every 2 h.; appetite good in spite of increasing pains in stomach. At 7.30 p.m., on going out, very severe bellyache, as if diarrhœa would set in; no stool; great lassitude. The urine passed in m. of 13th after standing 36 h. in a warm room was still strongly acid, and a mass of crystals had deposited in it, which under microscope and by the murexide test were recognised as uric

acid. Traces of oxalate of lime were seen as a milk-white precipitate. 15th.—A tablespoonful every 2 h.; soon after the first dose a pappy evacuation; all other symptoms as yesterday. Pains in stomach increase a while after eating, whilst formerly they vanished after eating. 3 p.m., an uncomfortable diarrhœic evacuation, likewise at 7 p.m., though in smaller quantity. At 5, soon after food, pains in stomach were more troublesome than ever, and at same time nausea with inclination to vomit before food was present. 16th.—A tablespoonful every 2 h. (= about 3 gr.); on awaking early difficulty of swallowing with scraping sensation; tonsils and velum palati slightly reddened and covered with adherent mucus, which can only be detached by violent effort. During previous n. frequent awaking from stomachache and urging to pass water. After each meal more acute stomachache and stronger inclination to vomit. Appetite previously good, to-day absent, although gnawing sensation in stomach often simulates hunger; at midday could, however, hardly swallow a few bites. Warm soup afforded relief, but after swallowing a few spoonfuls great urging to stool set in, which was thin, yellowish, slimy, and serous, and accompanied with tenesmus. The difficulty in swallowing increased after each meal. At 3.30 p.m. occurred second evacuation of same consistency, without blood but with much tenesmus. Towards e. pain in stomach and bowels became more acute, and obliged me to sit doubled up. As I had already noticed on taking my sweetened morning and afternoon coffee, the sugar in my tea seemed to increase the pains in the stomach. The tongue, in spite of the great loss of appetite, remained clean, moist, and uncoated. Throat still more reddened than in m. The morning's urine was strongly acid, deposited uric acid spontaneously, and contained oxalate of lime. 17th.—Nothing taken. Throughout n. was disturbed by pains in stomach and abdomen, and burning in rectum; before midnight and at 7.30 a.m. two serous stools with a few streaks of blood and much tenesmus. Great prostration with feeling as if spine were too weak to carry body. The symptoms of angina, subjective and objective, were the same as yesterday. Café au lait with sugar increased the persistent stomachache. 11.30 a.m. another serous evacuation, mixed with some blood; tenesmus. At midday little appetite; I took only some gruel, which relieved the painful sensations. In afternoon repeated but fruitless attempts to empty the bowels. Tenesmus during whole time. Climbing the stairs was especially troublesome. Head clear as heretofore. Character of urine same as yesterday. 18th.—Nothing taken. Sleep last night frequently disturbed by pains in anus; angina better; appetite also better, although food taken caused pains round and below navel, after a lapse of 2 h., that is, during its passage through the jejunum and ileum. Towards midday an evacuation, not so serous but still tinged with bloody slime; tenesmus; lassitude; urine as yesterday, although the oxalate of lime is less. 19th.—Nothing taken. Sleep good; still some burning in anus. Angina slight. Appetite good; no pain after food or sugar. Urging to stool, but no evacuation. Lassitude improved. Urine still acid. Oxalate of lime can still be perceived. 20th.—Nothing taken. Condition nearly normal, only some lassitude still; appetite and digestion

good; no stool. On following m., however, it occurred in normal mass and quantity, although still with some pain in anus. On the following days this symptom also vanished.

Roughly speaking I had during the last six d. taken 10½ ounces of the concentrated solution of oxalic acid, containing 65 grains of pure oxalic acid. Altogether, including the 1st and 2nd dilutions, I must have taken about 70 grains. The largest dose was 3 grains, or 18 grains per diem. (*Hom. Vierteljahrsch.*, ii, 340.)

2. A young physician to whom I gave some oxalic acid to prove, without his knowing what it was, experienced the following symptoms, which I give in his own words :—" The 2nd dilution taken every 2 h. caused no noticeable change, except that after a 50-drop dose I had a somewhat sluggish motion and passed water somewhat oftener but perhaps in smaller quantity. With doses of from 80—100 drops, however, this symptom vanished.

"Of the concentrated solution I took doses three times a d. only, and rose from 7 to 50 drops without detecting any change in my condition. Then the stools became more pappy and viscid, and called for longer and harder straining than usual. I remarked a weakness in the legs and increased transpiration all over the body, especially in the axilla. These symptoms remained the same up to doses of 80 drops, when there was a slight degree of qualmishness without inclination to vomit and a feeling of emptiness in the stomach. The latter was deceptively like hunger and often led me to eat, without being in the least changed by it. Beyond this the weakness, which I had previously remarked only in the legs, spread over the whole body, so that work usually light to me exhausted me very much and left behind no slight degree of muscular fatigue. With 90-drop doses the nausea and feeling of emptiness in the stomach increased, accompanied by an uneasiness of the whole body, so that I did not dare to increase the dose." (*Ibid.*)

3. Dr. HERING took, May 2nd, 1844, at 11 p.m., gr. $\frac{1}{10}$ of 1x trit. In ¼ h. pain pressing inwardly between vertex and occiput, on spot not larger than dollar on middle line. Sensation of slight numbness in l. arm. A very violent contracting pain in outer tendon of l. knee. Long and sound sleep at n. 3rd d.—In m. very bruised and stiff, cannot leave his bed till late. Had dreamt much which he could not remember. Bruised and stiff feeling in back on rising; but a chronic sore-throat and hæmorrhoidal uneasiness better than usual. Sour taste on rinsing mouth. Bleeding of gums to unusual degree while brushing teeth. At 9.30 a.m. internal sensation of heat, especially in face; pulse 108; urinates less than usual. At 11 hiccup continuing for some time, though he had eaten nothing substantial; and recurring for some h. whenever he thought of it. Face redder than usual. After walking out pain in testicles and spermatic cord, more in latter and worse r. side. While writing in forenoon violent jerking pain in ulnar side of r. arm near metacarpus. During speaking, much mucus in larynx, with hoarseness: he has to expectorate more than usual. Sensation of fulness in face and excitement, with disinclination to conversation. 12.45. Pulse 88. During hiccup stitching pressure over r. hip. In anus pain, like a dull slow stitch, often returning. Painful but slight pressure in r. temple, and soon after in hollow of r. knee; pain is somewhat jerking. Great appetite for food at 2 p.m.; 30 m. after pulse 96. A quick jerk in metacarpal joint of left index finger, soon also on ulnar side of hand, then on r. side of head. After rising from recumbent posture, pain in r. lumbar region between last rib and hip. Greater love of his children, in one in whom this feeling always predominated; a decidedly expressed and clearly distinguished symptom, it being

not traceable to any other cause. In afternoon violent starting at slamming of doors, excitement seeming physical rather than mental. Occasionally a pain in depth of ear, as in Eustachian tube, near throat; worst on r. side. In e., while sitting down after walking, violent itching on small spot of neck, r. side of hairy scalp, l. side of trunk, &c. Unwonted hunger at 11 p.m. 4th.—Again profound and long sleep; on rising quite stupid, lay down again and slept another h. Usual pain in sacrum is absent: instead thereof bruised sensation in back from loins to shoulders. Thought is effected slowly and with difficulty: is hardly able to answer questions proposed to him. Scanty urination. Indolence: he can scarcely sit up, but wishes to lie down; yet is not sleepy. Pulse quicker than usual. Some heat, at first in face, later in l. leg, as from external warmth. In lying a movement in the upper body, especially the head, like a fine rippling as of a stream. It seems to observe a rhythm, but not that of the pulse, than which it is three times faster. It is as if the blood was streaming through the smallest vessels, from below upwards and from within outwards. This feeling becomes plainer the more the thoughts are directed to it. On lying down also vertigo, like a swimming in the head towards l. After a nap numbness in occiput and erections. He had dreamt of rapid sliding walking, and of water being poured over him. Some urging to urine and stool while lying: on rising violent tenesmus in upper rectum, not as in diarrhœa, but painful, almost like knife-stabs. On sitting down to stool pressing cutting pain from r. upper rectum to anus. Stool pappy, light brown, clay-like. Scanty clear urine. After stool undefinable sensation in anus for ½ h. Some jerking in writing as on 3rd. While yawning a pressive stitch in r. hip, taking away his breath. Pain in nose. Yesterday and to-day peculiar tightness, a sort of weakness. During forenoon nap a decided sour taste in mouth. Then, moreover, and also while walking later, pain in heart, from behind and below forwards. At 1 sensation in fauces as if there were acidity in stomach. Pain in heart is very violent, as of electric flashes coming from within. In afternoon again passage from bowels, pappy, thick and short, with subsequent sensation in anus as yesterday. During passage violent stitches in ball of l. thumb, like knife-stabs. The anal pains have to-day same character, but are much worse. After stool a heavy rumbling in r. side of abdomen (cæcum) and noise from flatulency. A stitching pain between r. scapula and spine. On two following days same symptoms as on 4th, but less pronounced. On 6th had red points on glans penis, without itching or other sensation. For 2 or 3 d. on rising from sitting posture a sort of dizziness, as if senses would leave him, but without whirling round.

All the pains from ox. acid seem to occupy only a small spot, ½ in. to 1 in. in length. They recur especially when thinking of them.

b. Jan. 5, 1845, took a small quantity of an aqueous solution. After some h., while walking in open air, a very violent pain in l. eye, as it were on small short spaces. Towards e. violent pressive pain within middle of upper arm, as if in bone (just at insertion of deltoid), increased by movement or use of arm: it lasted all the e., and slightly next m. All afternoon and e. excessive fretfulness. Woke next m. with pain in l. kidney; and that day and next at each micturition pain in front of glans penis, 6 or 7 jerks, not violent, but very disagreeable. In afternoon of 3rd d. very bad temper. (*Amer. Arzneiprüfungen.*)

4. Dr. Neidhard took 1x trit. before going to bed. Some m. after pain in upper head. Thereupon contractive feeling, difficult breathing, at larynx a tightening with whistling breathing; then pressure on whole chest, especially r. side; then again the narrowing in the trachea with oppression of lungs. With these sense of emptiness in head and faintness; it seemed as if all the blood had left the head, and caused anxiety. Being awaked by a noise could not sleep again for 2 h. In m., while in open air, tickling in throat causing frequent cough; larynx feels swollen; unwillingness to speak. At 11 a.m. pressure over eyes while walking; pulse quicker, fuller, and harder than ordinary. Drawing pain with feeling of stiffness in angle of lower jaw, lasting some time during rest. Stitches in l. chest, more when

walking; slight perspiration. At n. distinct dreams of daggers: numbness of head and tickling with soreness in trachea.

During and after the 2nd trit. tickling cough with thick yellowish expectoration. (*Ibid.*)*

5. *a.* Dr. Koch. On 1st d., 3 m. after taking a dose (quantity unknown) pulse fell from 70 to 65, and after 30 m. was 60 and irregular, thereafter more frequent and fuller. In ½ h. warmth in stomach; in 45 m. burning on l. half of tongue, as from pepper; in 90 m. some tightness, with inclination to breathe deeply; in 2—3 h. power of apprehension failed when reading, and there was throbbing pain in forehead, and dull pain in middle of chest extending to scapula; in 5—6 h. (e.) vertigo on looking out of window, as if he should fall through, fine stitches in l. ear, slight shooting pains in umbilicus, cough and tickling in throat, and sore feeling at præcordia, with heaviness of chest as in asthma or hydrothorax; in 8 h. griping in bowels. On 2nd d., at 7 a.m., great quantity of clayey fæces, preceded by fine thin violent cutting in bowels; then general malaise, urging to stool, and again a loose motion; in afternoon diarrhœa and constant desire for stool, with evacuations of undigested food taken at dinner, followed by chilliness; at n. aching in chest as if ulcerated; in e. felt quite ill, and drank glass of wine, after which head was painfully confused; after supper severe cutting colicky pains, lasting all e., with constant urging to stool; there was also burning pain deep behind scapula. During day pulse was 60, skin always dry, disposition irresolute with indisposition to work, the eyes weak, fine stitches in cardiac region. In e. slight burning pain through urethra to its orifice, as if a drop of acrid urine wanted to come out. On 3rd d., immediately on rising, violent colicky pains so that he must cry out loud, followed by very copious diarrhœa; this recurred at 9 a.m., with great weakness and prostration, then nausea, and cramp in calf; in afternoon again diarrhœa. Eyes were sunken, with blue rings, pulse 60, gullet dry, breathing tightened. At 2 p.m. pain in chest, like sore shooting, extending backwards to between scapulæ; after dinner immediately rumbling in belly; in e. taste in mouth like sorrel, feet cold. During day constant dry cough on active exertion, with (in e.) anxiety and tightness, and in r. middle finger a penetrating, burning shooting pain, deep inside, most in last phalanx, like gout; at n. undisturbed long sleep, quite unusual, with profuse night sweat; the wet nightshirt on waking feels disagreeably cold to him. On 4th day, after coffee for breakfast rumbling in belly, especially l. side, then diarrhœa, and later nausea; at n. much discharge of flatus and rumbling. On 5th d. nothing noted. On 6th firm stool with much mucus and some blood; at n. violent burning when urinating, urine passing by drops. On 7th d. after exerting head severe pain there, especially in forehead, with confusion; at n. cutting pains in hollow molars. On 8th d., e., severe pains in teeth, and gums are

* The above is described as "out of Neidhard's day-book." This physician's symptoms, however, as detailed in his schema in the *Materia Medica of American Provings*, are more numerous than those here given, and only in the tickling cough do they coincide with them. We have, therefore, reported the others in their own place. —Eds.

LANE LIBRARY

painful on various spots, as if vesicles were there; from 9th to 13th burning in gum of l. lower incisor with pustules, surrounded by bright red areola and swelling.

b. On another occasion, took gr. ½. In 4 h. general malaise, feeling as if hands and feet trembled. Next day, 1 h. after coffee at breakfast, quite sour eructation, and violent dry cough from tickling in throat, with severe pains in chest, lasting some time; nausea after eating during day, and no action of bowels. On 3rd d. thin clayey stool in m., and cutting in abdomen later.

c. Another time took repeated doses of a solution. Stool was pappy and tenacious, requiring longer and stronger straining than usual; absent next day; and for 3—4 weeks bowels continued irregular, seldom acting oftener than every 3rd d.

d. On another occasion, in m. on rising a vesicle in r. nostril, shooting and burning when touched; alæ nasi swollen, now r., now l. most so. This recurred every 2nd or 3rd d. for 2 weeks. On 11th d. nose was very painful, shooting and burning, swollen and shiny red. No stool on 12th and 13th d. (*Ibid.*)

6. A man proved acid in doses of gr. ½—5 under Dr. Koch's superintendence. No symptoms till 3rd d., when he had vertigo in m., with lassitude and thirst; after rising, toes of r. foot spasmodically drawn downwards, without pain; this repeated at noon, after sitting for some time; in e., empty deglutition painful; before going to sleep, rough voice. On 4th d., heat in face and hands; pale face, with sunken eyes; nausea and want of appetite; three watery stools; muscles of upper arm pain as if beaten; in e., pain in swallowing food. On 5th d., complexion yellowish pale, eyes sunken; inflamed buccal cavity; pulse 105, hard and quick, at noon; all day chilliness, with heat on slight exertion; in forenoon, after breakfast, three thin clayey diarrhœic stools in ½ h.; three more at noon; at 8 p.m. another, firmer, with some pressure towards anus; in e., after some wine, violent pulsating headache. Next d. from rising till noon three stools, but firmer, and without urging; violent pain on swallowing in m., better at noon. On 7th and 8th d. some scraping in throat; on former pulse 78 and small. (*Ibid.*)

7. Another man took unknown quantities. On 3rd d. pressure in forehead on rising; during dinner, nausea, thought he must vomit, but did not; in e., pain in hollow tooth. At other times, mucus in mouth and spitting, with clean tongue; violent shooting in whole abdomen, extending to region of spleen, then impelled to deep breathing, after which it went off; pulse somewhat frequent, m. On 4th d., heaviness in l. hand, fingers obey will only heavily and slowly, and draw inwards. On 4th and 5th d. on rising, rough, scrapy throat, can only speak with effort; in e., sour taste in whole mouth as if drug were still there. (*Ibid.*)

8. A woman; as last. On 3rd d., severe lateral headache, a cutting from r. side of forehead to mastoid process; anxiety and dread, with vertigo; trembling of whole body, with exhaustion. Same symptoms next d., so bad that she could scarcely walk; headache causes closure of eyes; at 5 a.m. was waked bv cutting in abdomen, which

recurs periodically all day, with alternate chill and heat; pulse rather small; thirst, with nausea, tastelessness of food, and white-coated tongue; in e., constant yawning, with flow of water into mouth and flat taste there, followed by violent rigor with small contracted pulse, red face, feeling of heat in head without actual warmth there, and icy-cold hands as if dead. Next m., same cutting in abdomen, with nausea. (*Ibid.*).

9. Dr. S. R. Dubs, æt. 33, sanguine temperament; disposed to stomach and bowel disorder, took February 16th, 1845, 3 gr. 1x trit. at 10 p.m. At 11 sharp shooting pain in r. shoulder-joint, coming on suddenly, and lasting about 15 m. Slept very little through n., and when he did had constant dreams with starting, and then waking up with fright. The dreams were of an unpleasant character. Sharp pains in forehead and vertex, with feeling of lightness. Pain was more acute over l. eye and in l. temple. Several times raised himself up in bed in alarm, and looked around room; but on recollecting where he was, lay down again, to repeat same action in an h. or so after. 17th, 7 a.m., dull pain and muddled feeling in forehead. Hawking up of thick, yellowish-white phlegm with a black lump in the centre the size of a pea. 8·30 a.m. Took same dose. Dull pain, with occasional sharp pains in forehead. Great increase of animation through the day with playfulness and mirthfulness, which had not of late years been natural to him. Soreness of fauces on swallowing for about 2 h. this morning, after which it gradually passed off. Dull aching pains of molar teeth of r. and l. upper jaw; worse in r. Lasted nearly all day, but passed away towards e. Bowels opened at 9 a.m. and again at 4 p.m. Slight colic pain in and around the umbilicus, just before afternoon evacuation. Natural in every other respect. Tongue dry, sore, and excoriated, worse towards tip; continued so all d. and e. No thirst and rather a repugnance to water. 18th, 8 a.m., took same dose. Observed no particular symptoms in course of m. 4.30 p.m. Took 5 gr. 1x trit. In 15 m. felt dull pain in first molar tooth of r. upper jaw, which is very distressing. Had now flushes of heat and perspiration all over the body, which he also had in m. and yesterday, but omitted to note it down. 5 p.m. Pain like a cramp, a little to l. of umbilicus, and several m. after colic-like pain in the r. iliac region. Belching up of tasteless wind several times. Great disposition for play and mischief. Increase of pain in the r. molar tooth. 5 to 9 p.m. Disposition to pass water every two hours and in large quantities. Uneasiness in limbs and feet, which he can keep quiet for only a few m. at a time. 9 p.m. Distressed feeling around navel and through whole abdomen, with feeling of great debility therein. 10 pm. Dnll aching pains in abdomen, worse around umbilicus; occasionally aching pains in whole abdomen like colic. 11.30. Sharp and constant pain in l. iliac region. Great increase of sexual desire through n. and in m., with voluptuous dreams. This has been the effect the past three nights and mornings, the 16th, 17th, and 18th February. 19th, 8 a.m., took 5 gr. Had flushes of heat and perspirations through the morning, with sharp pains in forehead and vertex, which annoyed him very little as his spirits were so much elated. 4 p.m. Took 5 gr. more. 10. Distressed feeling and

great weakness in whole abdomen with flatulent colic. Aching pain in r. ankle-joint, with feeling of swelling of this part and of whole r. foot. Sexual excitement still. 20th.—Great flatulency the whole day with expulsion downwards of much wind. Swelling of abdomen, with dull colic-like pains occasionally in and around umbilicus, though worse in r. iliac region. Itching at anus with crawling sensation as if from worms, which was relieved by rubbing parts for several m. It, however, returned several times through n. 9 p.m. Sharp, shooting pain in l. lung and heart, extending down to epigastrium, lasting for some seconds. Sharp, shooting pain, like neuralgia, on instep of r. foot, lasting for ½ h. at intervals. Inclination to pass water every h., and in large quantities each time. Slight burning in passing the urine. It is clear and of a straw colour. 21st, afternoon, stitches several times in l. lung. Eructation of wind (tasteless) after each meal. 8 p.m. Sharp pain in r. instep lasting 5 m. Profuse flow of light-coloured urine frequently through e. Pain, colic-like, around umbilicus and in r. iliac region. It came and went off frequently. Weakness in loins and hips extending down to lower extremities. Continual dull pain in forehead and vertex. At n. and in m. excessive sexual desire, more so than he had experienced for some months previously. 22nd.—No symptoms sufficiently characteristic to note. 23rd.—Belching up of tasteless wind after each meal. Colic-like pains in and around the navel. E., belching up of wind tasting of food eaten. Sharp pain in r. ankle-joint. Sharp, lancinating pain in l. lung coming on so suddenly that it took his breath for several seconds, and then gradually subsided. 24th, 5.30 a.m., felt perfectly well as he lay awake in bed. At 6 was suddenly seized with distressing feeling in whole abdomen, followed in several m. by twisting (tormina) in and around the umbilicus. After this had continued a few m., was compelled to resort to the close stool. The fæces were hard, of a dark brown colour, and small in quantity. Again retired to bed; but at 6.15 pain and bearing down came on so violently that it caused him to use the chamber. The evacuation now was loose, though consistent, and of a muddy brown colour, accompanied by colic pains in navel and below this part, bearing-down and griping pains in anus. The latter were so severe as to produce severe nervous pains through whole head with heat in this organ. Retired to bed; but in about 5 m. was compelled to get up again. Severe colic pains in navel preceded. When on the chamber, bearing down towards anus, with tormina and severe griping pains. Now copious evacuation of consistent, dark muddy-brown fæces. Went again to bed; but so soon as he had resumed the horizontal posture peculiar pain in navel again came on. Had some tormina nearly all day. Much better whilst up, and still better when moving about in the open air. The inclination to go to stool would invariably come on whilst sitting or reclining for a few m. Two doses of merc. solub. 2 were taken in course of day; otherwise he would have been unable to attend to his daily professional duties. In e. he was perfectly well. (*Materia Medica of American Provings.*)*

* We are indebted to Dr. Neidhard for the original of this proving.—Eds.

10. Dr. FLOTO took one dose of 1x, and experienced following symptoms:—Soon after taking it pain on vertex; emptiness in head, sensation of faintness, as if all blood had left brain, with anxiety. On walking in open air, had watery running from nose, with sneezing; tickling in larynx, with sensation of sticking, several coughs are induced, larynx feels swelled; stitches in l. breast; difficult breathing, with constrictive pain in larynx and wheezing, oppression of chest towards r. side. Had also drawing pain with rigidity near angle of lower jaw, first in l. then in r. side, but longer in l. Being awakened by noise in n., could not go to sleep again for 2 h. (*Ibid.*)

11. Dr. KITCHEN took one dose each of 1x and 2x. Nervous and vascular excitement, as from alcohol, constituting a feeling of hilarity; pulse one third more frequent than usual, and tense. After lying down in bed twitchings in l. deltoid muscle, and in a few m. one in r. Tensive pain in fleshy part of l. thumb, with numbness and sensation of swelling, lasting about ½ h. (30 m.). A feeling as after a debauch the previous night; dull headache, with a gnawing, tensive pain, and soreness in eyes and superciliary regions, lassitude, disinclination to occupation, reading, &c., and inclination to stretch, with occasional yawning. Relief by walking in the cool open air (1 d. after 2x). (*Ibid.*)

12. Dr. NEIDHARD took 1x and 2x trits. Seems in its primary action to diminish the power of concentrating his ideas, and afterwards to increase it. Greater presence of mind; the relations of the world seem to be clearer to him. He feels more composed than usual, and very much exhilarated. Great cheerfulness of mind, quicker in thought and action. Whole forenoon unusual vivacity and power of concentration, which is still more decided in afternoon. Giddiness the whole d. Fulness in forehead above eyes. Pain in l. temple, extending as far as lower jaw (1½ h.). Jerking in l. temple. Augments in 1st h. secretion of mucus from throat. Slight sickness of stomach. Qualmishness of stomach, with sickness (6 h.), with sensation of grasping in stomach, very transient (in a few seconds). Slight gnawing burning in stomach, and eructations (1½ h.). Pressure in stomach (in a few minutes). Wakes up at night with most violent pressive pain, like a heavy weight in pit of stomach; it comes and goes at intervals of 15 m., but diminishes in force at each renewal. It lasts altogether about 2 h. Discharge of flatulency relieves pain (from 5 drops of oxalic ether taken in m.). In e. after tea pyrosis, with much emission of flatulency and pressing downwards. Every e. pyrosis. Loss of appetite. Unusual thirst at 3 a.m. (2 d.). Dull aching pain in r. side of abdomen, whole afternoon, on a small spot. Pain round navel like colic, repeatedly, but always after symptoms in head. Sensation of soreness in abdomen. For ½ h. after retiring continued pain in l. hypochondrium. Pain between hypochondrium and navel, on l. side, like a development of flatulency (½ h.). On sitting down after a walk, violent effort to discharge flatulency (as from small spot on l. iliac region), with sensation as if part would burst. Pain in region of navel, with painful pressing down towards anus, and flatulency. Pain in region of navel, with emission of flatulency in n. Whole e. rumbling in bowels with pressing downwards. Twice passage of bowels during day. In e. slight pain in region of r. kidney. Urging to pass water, with copious discharge; water is of a lighter colour than usual. Excitement of sexual function, repeatedly. Sensation of contusion in both testicles. During walking in e. pretty severe pain and heaviness in both testicles, shooting along spermatic cords; worse on r. side. Jerking in testicles and spermatic cord. Slight cough, from tickling in larynx and trachea; also sensation of soreness in larynx. Immediately after lying down in bed at n., palpitation of heart for ½ h. 3 n. consecutively. Sensation of numbness in sacrum. Slight lameness and stiffness in lower extremities. Itching on neck. On a spot on r. index finger, where a cut from a penknife had healed 4 d. ago, a very painful pustule appears (2nd). Continual and vivid dreams, always of a frightful nature; wakes up often and dreams constantly. Sleep very restless, but without dreams (2nd d.). After dinner, sleepiness, and profound sleep while in the sitting position. He is more inclined to sleep at n. than usual. Creeping of cold, particularly from lower part of spine upwards. In e., after tea, sneezing, with chilliness. General sensation of heat. Pulse increased in frequency, 100 to 108. General excitement in e. Symptoms seem to be excited and aggravated by movement, as pains in bowels, testicles, kidney, back, &c. Oxalic acid has a decided action on joints: ankle, knees, hip, wrist, shoulders.

Extreme lassitude of body. Symptoms of oxalic acid occasionally intermit for some h. or a d., and then return in a diminished degree. Some, who are generally much affected by cold weather, appear better able to bear it. (*Ibid.*)

13. Mr. E. SMITH took one dose of lx. Dull headache on vertex. Heaviness in forehead and vertex (in m. after taking acid in e.). Eructations and passage of flatulency downwards. Flatulent colic, like as if he had eaten unripe fruit, on waking up at n., below navel, which is increased by movement after getting up; pain diminishes during rest and returns periodically (n. after taking it). In m., after breakfast, on walking about, some pain returns; gets better about 9, and disappears entirely at 12. Sensation of soreness on touching, all round navel. (*Ibid.*)

14. Dr. WILLIAMSON took same in e. Unusual power of concentration of mind. Hilarity and cheerfulness. Pain along base of occipital bone, returning several times during first 2 d. Pain in both orbits, but worse in l. A sticking pain in l. hypochondrium (3 h.). Pain in descending colon, followed by free evacuation of mushy stool in e. (1 h.). Similar pain returned the second e. Copious discharge of urine at 5 a.m. after taking it. Sticking pain in r. hip-joint. Smarting soreness around neck, as if chafed by collar. (*Ibid.*)

15. *a.* Dr. SHARP, at 7.5 p.m., pulse 72, took gr. $\frac{1}{10}$ in 10 ♏ of water. At 7.10 pulse was 76, soon fell to 70. Soon after 8, giddiness and a little nausea; a loose motion, with a little griping. At 10.30 pulse was 60.

b. At 11.50 a.m., pulse 82, took gr. $\frac{1}{10}$ in 100 ♏ of water. Pulse in 5 m. rose to 86, then fell to 80. After going to bed that n. heart made its beatings sensible in an unusual manner, and attracted attention. Next d. bowels moved 3 times, relaxed, which is also unusual.

c. Took two doses of gr. $\frac{1}{100}$. After first pulse fell from 72 to 68; but second reduced it no farther. (*Essays on Medicine*, p. 787.)

II. *Poisonings.*—1. J. Phillips, æt. 57, muscular and robust, at 8 a.m. swallowed by mistake ℥ss of acid in teacupful of water. Vomited after drinking warm water, but not subsequently, in spite of emetics, &c. When seen at 9 complained of excruciating agony in lower part of back, extending down thighs; body extremely cold and clammy with sweat; skin of arms, chest, and face mottled; pulse very feeble and contracted; no pain in throat or abdomen, even when latter (which was distended) was pressed upon; muscular prostration very great; complained of weight and powerlessness of limbs; restlessness extreme, requiring frequent change of posture; respirations natural; perfect consciousness and unaltered expression. During forenoon, constant involuntary discharge of fluid matter from intestines. At 3 p.m., pain in back and thighs continuing unabated, he had also some little pain in abdomen, slightly increased on pressure; had recently vomited a pint of thick black fluid; pulse still more feeble. At 7 p.m., pain in abdomen increased to utmost; could not bear slightest pressure; had had several copious alvine evacuations, consisting of a thick black offensive fluid, in which were seen a number of bloody shreds; pulse imperceptible; respiration oppressed; countenance exhibited great anxiety; was sensible, and complained of having lost his sight: in this state he continued till 9 p.m., when he died. P.M., 10 h. after death. Upper part of body much discoloured; abdomen tumid. On opening peritoneum, great distension and discoloration of small intestines. Mucous membrane of pharynx and œsophagus as if scalded; villous coat of stomach pulpy, in some places of black colour, in others highly

injected. Mucous lining and peritoneal coat of small intestines much inflamed. Pelves of kidneys considerably more vascular than ordinarily, and this extended a little way through ureter. Mucous membrane of larynx and trachea, and lungs themselves, intensely inflamed. (HEBB, *Lond. Med. Repository*, N.S., ii, 475.)

2. Dr. ARROWSMITH, of Coventry, observed a case which lived 13 h. after an unknown quantity of the acid. He complained more of pain shooting down from loins to limbs than of pain in belly; and had an eruption of mottled appearance on the skin in circular patches of a deep tint of redness. (CHRISTISON, *op. cit.*)

3. Feb. 1st, 1825, at 7 p.m., Charlotte Walker, 12, drank a wine-glassful of a solution of oxalic acid (strength ʒj to ℥j water = ʒij of oxalic acid). Immediately acrid burning in mouth, gullet, and stomach. Complained when seen (very soon) of pain in stomach and belly; appeared greatly alarmed; pulse quick, not strong. Got ipecacuanha wine and tartar emetic, without result. Irritation of fauces with finger caused vomiting. This relieved the pain. She got carbonate of lime as an antidote. Put to bed she fell asleep for 2 h. On awaking complained of lassitude and feebleness, particularly of lower extremities. Next morning, numbness and weakness of back and lower extremities, making it difficult to go upstairs. This gradually went off and she quite recovered. (SCOTT, *Edin. Med. and Surg. Journ.*, xxiv, 67.)

4. A man swallowed at 7.50 a.m. ℥ss of ox. ac. in solution by mistake for Cheltenham salts. Great irritation of fauces and stomach succeeded. Drinking water, and taking 4 gr. of tartar emetic, caused vomiting, but no alleviation; diluted ammonia aggravated, but magnesia greatly relieved, burning distress. Pain, spasms, and vomitings (with blood), occurred from time to time; respiration was impeded; general numbness complained of; clammy moisture bedewed whole frame; pulse scarcely perceptible; extremities cold, nails livid; general agitation and loss of strength. By noon, reaction had taken place, and became pyrexial; pulse 96 and firm. Diaphoresis followed, with pulse at 120 and small; in e. 100. Tingling felt at tips of fingers. Early in m. retching, spasms and hiccup set in,—last continuing several d., also numbness in l. arm. On 3rd d. face swollen, voice hoarse, general anxiety. Till 7th d. seemed improving much; hiccup then increased and emaciation set in; tongue patchy; complained of acidity; inclined to doze, and occasionally had hallucinations. On 11th d. an eruption, papular and itchy, appeared all over body, which it reddened. Debility and emaciation increased; nothing but the blandest articles could be taken; and he died on 13th d. P.M.—Found complete destruction of villous coat of stomach. (FRASER, *Ibid.*, xiv, 606.)

5. A middle-aged shoemaker, a hard drinker, took ¼ oz. of acid in crystals. Prepared chalk was given freely. Symptoms were: severe burning sensation in mouth and throat with great thirst and difficulty of swallowing; excruciating pain in epigastrium and cold, clammy perspiration; numbness and tingling in extremities, legs drawn up towards abdomen; pulse but just perceptible; breathing slightly spasmodic; eatures anxious and pallid. 8 p.m. (9 h. after first visit). Hot feeling

in throat and tingling of extremities continued. A new symptom presented itself, viz. *alteration of voice*. The man, previous to taking the poison, possessed a remarkably deep bass voice; it was now reduced to a very low key, giving one the idea of a person talking in an undertone. This symptom remained for more than a month without any amelioration, during the greater part of which period his legs used for several hours a day "to go to sleep," as he termed it. Nine weeks from time of taking acid his voice, though stronger, was still "a complete old man's voice."* (BRADLEY, *Med. Times*, xxii, 293.)

6. A woman took ʒiij in about ℥iij of water; the greater part was evacuated within 15 m. by means of stomach-pump. Subsequently there were convulsions, spastic contractions of muscles of jaws and extremities, forcible closure of mouth and drawing down of its angles; dilated alæ nasi, corrugated eyebrows, twitching of facial muscles and insensibility. Great cerebral excitement afterwards occurred, accompanied by dry coldness of surface and imperceptible pulse; symptoms less marked during intermission of tetanic spasms; spasmodic symptoms declined in 3 h. from taking poison. (BOURNE, *Lancet*, 1851, i, 329.)

7. A man took 477 grains dissolved in 5 oz. of water. Besides usual symptoms, face was tumid and of livid complexion, urine suppressed entirely, no stool (even after enema). Vomits grass-green fluid. 4th d.—Pulse 132, full and hard; tongue has thin brown coat and red dry tip; very thirsty; no pain, but still distressed and anxious; vomiting diminished. 5th d.—Pulse 122, full, hard, and intermittent; tongue covered with brown coat, red at tip and dry; is very thirsty; passed urine twice in night. 6th d.—Pulse 100, full, not hard; vomits less; is delirious at times; tongue covered with bright yellow coat; passes urine; skin of face, head, chest and nates covered with red spots or petechiæ, appearing as if bespattered with blood. 7th d.—Pulse 104, hard; tongue covered with brown coat, tip red and dry; no pain, but still distressed; vomits less frequently; feels sinking sensation at stomach. 10th d.—Evidently sinking; face hippocratic; pulse almost insensible to touch, very weak; delirium and stupor; bladder distended with urine, but cannot pass it; does not vomit, although he has a desire to do so; petechiæ still visible. Died quietly at 9 p.m. (JACKSON, *Boston Med. and Surg. Journ.*, xxx, 17.)

8. A robust man, æt. 40, took a quarter of a teaspoonful of "salts of lemon" (binoxalate of potash). Two h. afterwards was attacked by vomiting, and about the same time by severe pain in loins and feeling of great weakness in lower extremities. Six d. afterwards, when first seen by the writer, complained of lumbar pain, swimming in the head, sensation of coldness succeeded by burning heat in chest and stomach, and great muscular weakness. Micturition was accompanied by sensation of scalding. Tongue abnormally red and irritable looking. Three days later says he has suffered from spasmodic contraction of hands, cramps in legs, and heaviness and pain in head. Tongue and

* "In a case related by Mr. Edwards to the Westminster Med. Society, the patient, a female, lost her voice for eight days; but whether this depended on the action of the oxalic acid she had taken, or not, it is difficult to say." (TAYLOR, *Poisons*, p. 249.)

fauces still red and irritated. (WEBB, *Med. Times and Gaz.*, 1859, ii, 379.)

III. *Experiments on animals.*—1. *a.* When injected in a state of concentration into the stomach of a dog or a cat, ox. a. causes exquisite pain, expressed in cries and strugglings. In a few m. this is succeeded by violent efforts to vomit, then by sudden dulness, languor, and great debility, and death soon takes place without a struggle. After death stomach is found to contain black, extravasated blood, exactly like blood acted on by the acid out of the body; inner coat of stomach is of a cherry-red colour, with streaks of black, granular, warty extravasation, and in some places surface of coat is very brittle and subjacent stratum gelatinized, evidently by chemical action of poison. If stomach is examined immediately after death little corrosion will be found compared with what is seen if inspection be delayed a day or two.

b. When considerably diluted phenomena are totally different. When dissolved in 20 parts of water, ox. acid, like the mineral acids in the same circumstances, ceases to corrode, nay it hardly even irritates; but, unlike them, it continues a deadly poison, for it causes death by acting on the brain, spine, and heart. The symptoms then induced vary with the dose. When the quantity is large the most prominent symptoms are those of palsy of the heart, and immediately after death that organ is found to have lost its contractility, and to contain arterial blood in its l. cavities. When dose is less animal perishes after several fits of violent tetanus, which affects respiratory muscles of chest in particular, causing spasmodic fixing of muscles of chest and consequent suffocation. When dose is still less spasms are slight or altogether wanting, and death occurs under symptoms of pure narcotism like those caused by opium: animal appears to sleep away. (CHRISTISON, *op. cit.*)

2. The first unequivocal sign of its action is generally a slight permanent stiffness of the hind legs, and increased frequency of the pulse; about the same time there appears a slightly sudden check in inspiration from the respiratory muscles contracting before the chest is fully expanded. Gradually several of them come together, so as to constitute paroxysms of short hurried breathing with intervals of ease. Meanwhile the stiffness of the hind legs increases; they become likewise insensible, and often spasm gives place to paralysis; the animal jerks the head occasionally backwards, walks with a peculiar stiff gait, and assumes very odd postures from inability to regulate the motions of the limbs. As the poisoning advances, the motions of the chest, during the paroxysms, become more and more confined by spasms of the muscles, and at last there is a period towards the close of each paroxysm when the spasm is so great as completely to suspend the respiration. This is commonly accompanied with more or less extension of the head, tail, and extremities, sometimes amounting to violent opisthotonos. The insensibility, hitherto limited to the hind legs, now extends to the trunk and fore legs, and lastly to the head. As the insensibility increases the breathing diminishes in frequency, the spasmodic paroxysms become more obscure and then cease altogether. For some time, however, they may be slightly renewed by striking the back and limbs; but at last the animal falls into a state of deep, pure

in throat and tingling of extremities continued. A new symptom presented itself, viz. *alteration of voice.* The man, previous to taking the poison, possessed a remarkably deep bass voice; it was now reduced to a very low key, giving one the idea of a person talking in an undertone. This symptom remained for more than a month without any amelioration, during the greater part of which period his legs used for several hours a day "to go to sleep," as he termed it. Nine weeks from time of taking acid his voice, though stronger, was still "a complete old man's voice."* (BRADLEY, *Med. Times*, xxii, 293.)

6. A woman took ʒiij in about ℥iij of water; the greater part was evacuated within 15 m. by means of stomach-pump. Subsequently there were convulsions, spastic contractions of muscles of jaws and extremities, forcible closure of mouth and drawing down of its angles; dilated alæ nasi, corrugated eyebrows, twitching of facial muscles and insensibility. Great cerebral excitement afterwards occurred, accompanied by dry coldness of surface and imperceptible pulse; symptoms less marked during intermission of tetanic spasms; spasmodic symptoms declined in 3 h. from taking poison. (BOURNE, *Lancet*, 1851, i, 329.)

7. A man took 477 grains dissolved in 5 oz. of water. Besides usual symptoms, face was tumid and of livid complexion, urine suppressed entirely, no stool (even after enema). Vomits grass-green fluid. 4th d.—Pulse 132, full and hard; tongue has thin brown coat and red dry tip; very thirsty; no pain, but still distressed and anxious; vomiting diminished. 5th d.—Pulse 122, full, hard, and intermittent; tongue covered with brown coat, red at tip and dry; is very thirsty; passed urine twice in night. 6th d.—Pulse 100, full, not hard; vomits less; is delirious at times; tongue covered with bright yellow coat; passes urine; skin of face, head, chest and nates covered with red spots or petechiæ, appearing as if bespattered with blood. 7th d.—Pulse 104, hard; tongue covered with brown coat, tip red and dry; no pain, but still distressed; vomits less frequently; feels sinking sensation at stomach. 10th d.—Evidently sinking; face hippocratic; pulse almost insensible to touch, very weak; delirium and stupor; bladder distended with urine, but cannot pass it; does not vomit, although he has a desire to do so; petechiæ still visible. Died quietly at 9 p.m. (JACKSON, *Boston Med. and Surg. Journ.*, xxx, 17.)

8. A robust man, æt. 40, took a quarter of a teaspoonful of "salts of lemon" (binoxalate of potash). Two h. afterwards was attacked by vomiting, and about the same time by severe pain in loins and feeling of great weakness in lower extremities. Six d. afterwards, when first seen by the writer, complained of lumbar pain, swimming in the head, sensation of coldness succeeded by burning heat in chest and stomach, and great muscular weakness. Micturition was accompanied by sensation of scalding. Tongue abnormally red and irritable looking. Three days later says he has suffered from spasmodic contraction of hands, cramps in legs, and heaviness and pain in head. Tongue and

* "In a case related by Mr. Edwards to the Westminster Med. Society, the patient, a female, lost her voice for eight days; but whether this depended on the action of the oxalic acid she had taken, or not, it is difficult to say." (TAYLOR, *Poisons*, p. 249.)

fauces still red and irritated. (WEBB, *Med. Times and Gaz.*, 1859, ii, 379.)

III. *Experiments on animals.*—1. *a.* When injected in a state of concentration into the stomach of a dog or a cat, ox. a. causes exquisite pain, expressed in cries and strugglings. In a few m. this is succeeded by violent efforts to vomit, then by sudden dulness, languor, and great debility, and death soon takes place without a struggle. After death stomach is found to contain black, extravasated blood, exactly like blood acted on by the acid out of the body; inner coat of stomach is of a cherry-red colour, with streaks of black, granular, warty extravasation, and in some places surface of coat is very brittle and subjacent stratum gelatinized, evidently by chemical action of poison. If stomach is examined immediately after death little corrosion will be found compared with what is seen if inspection be delayed a day or two.

b. When considerably diluted phenomena are totally different. When dissolved in 20 parts of water, ox. acid, like the mineral acids in the same circumstances, ceases to corrode, nay it hardly even irritates; but, unlike them, it continues a deadly poison, for it causes death by acting on the brain, spine, and heart. The symptoms then induced vary with the dose. When the quantity is large the most prominent symptoms are those of palsy of the heart, and immediately after death that organ is found to have lost its contractility, and to contain arterial blood in its l. cavities. When dose is less animal perishes after several fits of violent tetanus, which affects respiratory muscles of chest in particular, causing spasmodic fixing of muscles of chest and consequent suffocation. When dose is still less spasms are slight or altogether wanting, and death occurs under symptoms of pure narcotism like those caused by opium: animal appears to sleep away. (CHRISTISON, *op. cit.*)

2. The first unequivocal sign of its action is generally a slight permanent stiffness of the hind legs, and increased frequency of the pulse; about the same time there appears a slightly sudden check in inspiration from the respiratory muscles contracting before the chest is fully expanded. Gradually several of them come together, so as to constitute paroxysms of short hurried breathing with intervals of ease. Meanwhile the stiffness of the hind legs increases; they become likewise insensible, and often spasm gives place to paralysis; the animal jerks the head occasionally backwards, walks with a peculiar stiff gait, and assumes very odd postures from inability to regulate the motions of the limbs. As the poisoning advances, the motions of the chest, during the paroxysms, become more and more confined by spasms of the muscles, and at last there is a period towards the close of each paroxysm when the spasm is so great as completely to suspend the respiration. This is commonly accompanied with more or less extension of the head, tail, and extremities, sometimes amounting to violent opisthotonos. The insensibility, hitherto limited to the hind legs, now extends to the trunk and fore legs, and lastly to the head. As the insensibility increases the breathing diminishes in frequency, the spasmodic paroxysms become more obscure and then cease altogether. For some time, however, they may be slightly renewed by striking the back and limbs; but at last the animal falls into a state of deep, pure

coma, with complete relaxation of the whole body. The heart can now be scarcely felt; the breathing is low, regular, and short, and becomes gradually more obscure till, finally, life is extinguished without a struggle. If the dose be larger fits of spasm come on early and with great violence, the intervals are marked by remissions only, and the animal expires in a paroxysm before the stage of insensibility begins. Death may be produced in this manner in 3, 5, or 10 m. If, on the other hand, the dose be much diminished, there may be stiffness of the hind legs, much dulness, drooping of the whole body, and a sort or somnolency without insensibility, or even without spasmodic paroxysms, and then the animal will commonly recover. (CHRISTISON and COINDET, *Edin. Med. and Surg. Journ.*, xix, 182.)

3. According to the experiments of CYON, in which ox. acid and the oxalate of sodium were injected subcutaneously or into the cavity of the abdomen, ox. acid and its salts are cardiac poisons. Soon after the injection the pulse becomes very weak and frequent, then follow quickly dyspnœa, convulsions, death; the heart, at once laid bare, is stopped and full of blood. (BURNETT, *Brit. Journ. of Hom.*, xxxv, 314.)

4. When an animal is examined immediately after death no appearance of note is found in the brain, peritoneal sac, or intestines. Unless death has been very rapid, the lungs are almost always studded on their surface with bright scarlet spots, and sometimes we have seen even the whole parenchyma of a uniform and beautiful scarlet colour. At the same time there never was any effusion either into the air-cells or their cellular tissue. In cases of poisoning that prove fatal before the stage of insensibility comes on, the heart, 2 or 3 m. after death, is found neither contracting nor contractile; its pulmonary cavities are distended, and the blood is dark in those cavities and florid in the aortal. This fact is conformable with what we have observed in the same animals just at the time of death, viz. the contractions of the heart are almost imperceptible even before the breathing ceases, and never continue after it. In the slowest cases, in which coma prevails for some time before death, the heart, though very feeble in its contractions towards the close, beats a little after the breathing has ceased, and then the blood is found equally dark in both vascular systems. There is likewise an intermediate variety of poisoning, wherein the stage of insensibility is short, and the heart scarcely survives the stoppage of respiration; and in such cases the blood in the aortal cavities is darker than natural, but still considerably more florid than that of the veins and pulmonary cavities. (CHRISTISON and COINDET, p. 184.)

ACIDUM PHOSPHORICUM.

Phosphoric acid. H_3PO_4. Prepared by Hahnemann from action of sulphuric acid on calcined bones. The Brit. Hom. Pharm. prefers to burn phosphorus in oxygen, and dilute product to sp. gr. 1·058. The Brit. Pharm. obtains its acid from phosphorus by aid of nitric acid.

1. *Provings.*—1. HAHNEMANN, *Materia Medica Pura*, vol. v of original, vol. ii of English translation. Contains 268 symptoms from author, and 411 from 12 fellow observers.

2. IBID. *Chronic Diseases*, Part v of original, vol. of translation. Augmented by 139 symptoms, mainly credited to Hering, and probably observed on patients mentioned in preface as cured by him with the acid.

3. Dr. HEINIGKE took, from 24th to 31st May, phos. ac. 3, 5 drops 2 or 3 times daily. During the 7 d., though in normal state bowels were usually loose, he had constipation, with usually ineffectual call to stool. But his sufferings commenced on the 8th d., when he had ceased to take any medicine. Hitherto he had never suffered from any rheumatic or gouty ailments. 31st May, e., an acute pain betwixt scapulæ, of a boring and drawing character, followed by disturbed sleep. 1st June. —On waking in m. pain had gone into l. shoulder-joint, and there it remained for 8 weeks. It increased every d., and on 15th June seemed to have attained its greatest intensity ; it was of a boring, digging, and drawing kind, and was strongly remittent, nearly intermittent in character. It awoke him between 2 and 3 a.m., and then he could not get to sleep again until he had taken an antidote. The axillary and radial nerves seemed to be chiefly affected ; transient pressure on shoulder caused no change ; lying on l. side caused aggravation ; moving shoulder and arm caused relief ; so did raising the left arm above the head ; everything that impeded circulation of blood caused aggravation, while all that promoted it gave relief. The pain was worst during absolute rest, *e.g.* while being shaved. It lasted from 2 a.m. till 8 a.m., then got better. After dinner (2 p.m.) aggravation till 4 p.m., then remission. A fresh aggravation from 7 p.m. till 11 p.m. Beer and wine caused aggravation, moving in open air amelioration. When pain had lasted 3 weeks he resorted to remedies. First rhus 12, that at first brought relief, but after 3 d. was of no use. Bry., arn., and ign. did little good. Con. 12 gave more relief, but brought on spasms in stomach. By 10th July pain, though less, was still bad. Ferr. met. 2 caused material improvement. That and con. alternately reduced pain by middle of August to numbness in course of radial nerve. In lower extremities he noticed slight swelling of feet, with burning in soles ; occasional tearing and painful drawing in course of r. external plantar nerve.

In middle of June he was seized with capillary bronchitis, which he could only ascribe to the medicine. It came on with febrile symptoms that lasted 3 d., with e. exacerbations ; dyspnœa, aching pain under sternum, then frequent sneezing, much thirst, some coryza, the copious expectoration was of purulent character. A few furuncles

as if from stimulants; no desire for lunch, some thirst. 6. Dull occipital headache, slight nausea, sweat profusely on exertion. 7. Scant stool and scant urine, ate heartily. 11. Very weary, cannot sleep from itching and sexual excitement; erections weak, attended by salivation and palpitation of heart. 12. Called to urinate, scant and slow. 1. Same repeated, slept until 8. 2nd d.—Waked with dull headache between eyes, irritability of sexual organs, mental depression, languor, pulse 65. 8. Little appetite, more thirst, tongue pasty; stool after eating, followed by sinking at epigastrium; felt languid and chilly in open air; called to urinate at 12, scant and irritating; slimy saliva in mouth during forenoon. 3. Ate heartily, much oppressed after, much flatulence. 5. Watery stool, much flatus; e., tympanites. 10. General cold sweat and free urine. 3rd d.—Copious urine on rising, slight exercise causes backache, free stool and copious urine at 10, free urine at 1, again at 4 and 6; well as usual in e. (*Communicated.*)

ACIDUM PICRICUM.

Picric acid, carbazotic acid, $C_6H_2(NO_2)_3OH$. Product of action of nitric acid on several substances (as carbolic acid and salicin).

I. *Provings.*—1. PARISEL. *a. Non-impregnation.*—We administered and took ourselves, an hour before food, a wineglassful of picric wine (1 grm. to 1 litre). The aperient effect was greater than that of absinthe, but the bitterness was extreme. The same effect was complained of by a lady who took at the same time half a glass of aqueous solution, 1 in 10,000. Besides this effect there occurred slight diuresis. As a local effect, slight warmth at the stomach following the ingestion was noticed.

b. Picratisation (produced by doses of 0·05 to 0·20 grms. in the 24 h.).—The first symptom (and the most apparent) of "picratisation" is the coloration of the integuments, and notably of the conjunctivæ, of a clear yellow. The subject seems attacked with simple jaundice. Cerebral symptoms are only produced if the impregnation is effected with heavy doses; if the daily doses (from 0·05 grm. to 0·20 grm.) are spread over the 24 h. the cephalic effects are totally wanting. The appetite is diminished rather than augmented. The effect upon the kidney is very remarkable; the activity of this viscus, which was stimulated by tonic doses, is now diminished; the urine is less abundant, and its colour varies from yellowish orange to blood red, according to the intensity of the impregnation. Lastly the acid comports itself as an irritant to the kidney. Its irritation is general, and if the organ is healthy may have no ill effects, especially if the ingestion of the drug be not prolonged. Besides the coloration and the quantity the urine varies in appearance. When picratisation is complete and strongly kept up, at the same time that decided anuria is produced the liquid becomes thicker and more viscid, as if full of flocculi. This appearance is generally due to mucus. When the urine arrives

appeared on l. side of chest and back. The urine, which was copious and clear during the proving days, became in June and July dark and turbid. With all the pain and sleeplessness he felt during June fresh and lively in mind; in July there was exhaustion and general depression. (*Allg. hom. Zeit.*, lxxix, 157.)

4. Dr. SCHELLING took phos. ac. 12, one drop in three doses, m., afternoon, and e. Jan. 13th, forenoon, irresistible yawning, also in e.; vertigo, staggering when walking about; cold feeling, more internal shuddering than external cold. Exhaustion, dislike to every occupation; slight burning in middle of chest after occupation; burning itching pain in middle of chest and upper abdomen, with frequent hawking of mucus. In e. great discharge of flatus smelling of garlic; frequent yawning and chilliness from 9 to 10 a.m. and 4 to 6 p.m.; memory for ordinary work nearly lost; in e. tearing spasmodic pain in l. wrist and cold feet. (At n., from 2—4 a.m., no sleep on account of thoughts intruding.) 14th, m., exhaustion, uncomfortable, inclined for nothing; took another dose of phos. ac., thereafter constant severe yawning for ¼ h. (From reading a few lines exhausted, heavy pressive headache, and nausea.) E., in bed great discharge of flatus with garlic smell for ½ h.; cough and hawking of thin mucus; sleep quiet, woke a few times. 15th.—Very cold weather; in e. spasmodic drawing in feet, very severe in r. sole and ball of big toe, preventing sleep till after midnight; after 1 a.m. pains went off, quiet sleep; next m. woke feeling well, slept well; next m. expectoration of salt mucus. (*Ibid.*, lxxxiv, 43.)

5. Dr. ANDREWS took increasing doses, from 20 drops to ʒss. Within first interval there is increase in force of pulsations, though there is little change in number during whole time of experimentation. Increase is most marked after lapse of from 1 to 2 h., and it is not till after several h. that pulse returns to its normal condition. The sensations experienced of taking from 40 drops to ʒiij were those of moderate alcoholic stimulation. There was slight pain through frontal region, and a buoyancy and lightness of feeling rather agreeable. When a larger dose was taken there was a feeling of drowsiness, an inclination to lie down, and an unwillingness to undertake mental labour. This continued for some h. (*Amer. Journ. of Insanity*, 1869, p. 113.)

6. Dr. A. W. WOODWARD. 8 a.m. Health sound, pulse 65. Took 10 drops of 1x in water; soon feeling of a lump in stomach with eructations. 8.5. Itching of scalp, hands feel swollen, eructations again. 8.7. Rumbling in bowels, itching of ear, chest seems bound, breathing oppressed; eyes watery. 8.10. Drawing in r. hand, cramp in l. calf; sighing respiration. 8.15. Pulse 76, lump in stomach, perspiration on forehead, yawning. 8.20. Cramp in r. hand, eructation, yawning, dull ache in lumbar region. 8.30. Pulse 84, no appetite, much itching on scalp and scrotum. 8.45. Dull headache, sneezing. 9. Lump in stomach, dull ache in back, itching returns. 9.30. Hazy vision, rubbing eyes relieves; languid, pulse 92, weak. 10. Usual stool; after stool sickening pain about umbilicus; putting on walking shoes find feet swollen and sore. 10.30. Fresh air invigorated me; felt strong in mind and body until 5 p.m.,

as if from stimulants; no desire for lunch, some thirst. 6. Dull occipital headache, slight nausea, sweat profusely on exertion. 7. Scant stool and scant urine, ate heartily. 11. Very weary, cannot sleep from itching and sexual excitement; erections weak, attended by salivation and palpitation of heart. 12. Called to urinate, scant and slow. 1. Same repeated, slept until 8. 2nd d.—Waked with dull headache between eyes, irritability of sexual organs, mental depression, languor, pulse 65. 8. Little appetite, more thirst, tongue pasty; stool after eating, followed by sinking at epigastrium; felt languid and chilly in open air; called to urinate at 12, scant and irritating; slimy saliva in mouth during forenoon. 3. Ate heartily, much oppressed after, much flatulence. 5. Watery stool, much flatus; e., tympanites. 10. General cold sweat and free urine. 3rd d.—Copious urine on rising, slight exercise causes backache, free stool and copious urine at 10, free urine at 1, again at 4 and 6; well as usual in e. (*Communicated.*)

ACIDUM PICRICUM.

Picric acid, carbazotic acid, $C_6H_2(NO_2)_3OH$. Product of action of nitric acid on several substances (as carbolic acid and salicin).

I. *Provings.*—1. PARISEL. *a. Non-impregnation.*—We administered and took ourselves, an hour before food, a wineglassful of picric wine (1 grm. to 1 litre). The aperient effect was greater than that of absinthe, but the bitterness was extreme. The same effect was complained of by a lady who took at the same time half a glass of aqueous solution, 1 in 10,000. Besides this effect there occurred slight diuresis. As a local effect, slight warmth at the stomach following the ingestion was noticed.

b. Picratisation (produced by doses of 0·05 to 0·20 grms. in the 24 h.).—The first symptom (and the most apparent) of "picratisation" is the coloration of the integuments, and notably of the conjunctivæ, of a clear yellow. The subject seems attacked with simple jaundice. Cerebral symptoms are only produced if the impregnation is effected with heavy doses; if the daily doses (from 0·05 grm. to 0·20 grm.) are spread over the 24 h. the cephalic effects are totally wanting. The appetite is diminished rather than augmented. The effect upon the kidney is very remarkable; the activity of this viscus, which was stimulated by tonic doses, is now diminished; the urine is less abundant, and its colour varies from yellowish orange to blood red, according to the intensity of the impregnation. Lastly the acid comports itself as an irritant to the kidney. Its irritation is general, and if the organ is healthy may have no ill effects, especially if the ingestion of the drug be not prolonged. Besides the coloration and the quantity the urine varies in appearance. When picratisation is complete and strongly kept up, at the same time that decided anuria is produced the liquid becomes thicker and more viscid, as if full of flocculi. This appearance is generally due to mucus. When the urine arrives

at this stage its colour is always of a blood red. Last and most important of all the phenomena of picratisation is the slowing of the circulation. This phenomenon, which we have studied upon about thirty individuals, including ourselves, is only slightly manifest after small doses. But in proportion as the dose becomes larger the effect is more powerful. We shall study it presently in speaking of intoxication from the acid, but even with doses of 0·20 grm. taken within 1 h. we have found the difference to be on the average from 4 to 5 beats of the pulse. The effect is produced from 1½ to 2 h. after the ingestion of the dose. I ought to state that in two of these thirty individuals I found not slowing, but on the contrary a slight febrile disturbance.

c. Picric intoxication requires for its production doses of 0·3 to 0·6 of the acid, and presents three periods: 1, a period of cerebral excitation; 2, a sedative effect; 3, return to the normal state or reaction.

d. On 16th Dec., 1867, at 8 a.m., took 3 pilules, each containing 0·10 grm. of acid, and ½ h. afterwards two others of the same strength; the total quantity of acid absorbed was therefore about 0·5 grm. At the commencement of the experiment the pulse was 71; ½ h. after 2nd dose buzzing and whistling in ears, though not severe, sparks, whirling round of objects, heaviness of head alternating with sensation of emptiness. At 9.15 a moderately copious stool, oily-looking, yellowish; the cerebral symptoms were relieved; at 9.30 pulse 58; at 10 a second stool, pulse 55; at 10.30, 52; at 10.45 a third stool, urine red; at 11 pulse 48, small, feeble, scarcely able to lift finger; great weakness, necessitating lying down; the limbs seemed hardly able to stir themselves; no anxiety; profound calm. In e. no appetite; at 6 pulse 60, still feeble; at 10, 65, stronger; perspiration; sleep pretty good. Next m. vivid coloration of sclerotics and integuments, urine coloured, pulse 75, fairly strong; still some weakness. The appetite is returning, but after a short walk repose is still necessary. In e., and especially next day, nothing special, except coloration of the urine, which lasted 6 d., and that of skin, which lasted 10.

e. Three experiments upon a man suffering from panaris and a woman with abscess of the breast, both affections being in the stage of cicatrisation at the time. The man took 0·5 and the woman 0·4 grm. Both presented the above symptoms, with slight modifications. Thus the man had very slight sweating, the minimum of the pulse was 52, the rate at starting being 75, the coloration of the skin only lasted 7 d. The woman, on the contrary, had abundant sweats, four stools, after the last she was very weak and had to be put to bed; from 70 the pulse fell to 50, and was very feeble; during the reaction it rose to 80; the skin coloration lasted 9 d.

f. Slow poisoning.—In certain cases where we have pushed the picratisation a little too far, we have been arrested by certain symptoms evidently the result of slow poisoning. The principal of these is again furnished by the pulse, which manifests in fact a febrile movement of the intermittent quotidian type. The attack is, however, rarely grave. There is present anorexia, thirst, often sweat, cancerous tint about the skin, tendency to cachexia. All these symptoms speedily

disappear on the cessation of the drug. Another important symptom which often occasions the interruption of the experiment is a *sensation* about the region of the kidneys, which often turns to true pain, indicating evidently irritation of the kidneys. To cause these symptoms in the healthy subject we gave the acid steadily for three months in repeated doses of 0·10 during the first two months, and 0·15 during the last. (*De l'Acide Picrique.*)

2. W. S. F—, in perfect health; never had headache of any kind. Bowels normal and regular. Jan. 29th, 30th, 31st, and Feb. 2nd, took one dose of 30th. No symptoms. Feb. 3rd, 8 a.m., one powder of 1st cent. On 3rd, at 3 p.m., pain in r. supra-orbital region, sharp and vibrating, stopping a moment or so, and then beginning again (lasted ½ h.). 4th, 3 p.m., dull, sleepy pain in the forehead, with sour eructations (lasting 1 h.). 9.30 p.m. Dull, stunning pain in chest, with twitching in throat. Sharp, cutting pain in l. temple over small transverse branch of temporal artery. 5th.—Awoke with very strong erections, and pain in abdomen; pass great deal of wind from the bowels on moving; sour, bitter taste in mouth; nose filled with mucus; can breathe only through mouth; relieved by going into open air. 8 a.m. 1 dose 1st. 11 a.m. Pain in l. thigh in front; could hardly flex and extend the leg; lasting 15 m. 7.30 p.m. Sour eructatations of gas and ingesta; severe pain in back of l. leg, extending to sole of foot, with sensation as if foot would go to sleep; relieved by motion and open air. 6th, 6 a.m., awoke with emission and very firm erection, which continued about 10 m. after emission; crawling, stinging pains in abdomen; bad taste as if of gas in mouth, and water-brash; throat dry and husky; nose filled up; could only breathe with mouth open; crawling pain in sole of l. foot and under patella; sensation as if sand was in eyes, with smarting pain and acrid tears; all symptoms relieved by cold water and walking in open air. 7th, 8 a.m., 1 dose 1st. 12 m., rumbling pain in abdomen; weakness of legs at knees; head feels as if falling forward; eyes watery, stinging pain in them; taste sour; bad taste in mouth. 5 p.m. Dull, sleepy pain over left temple; chest feels tight as if encircled by a band. 8th, 4 a.m., terrible erections. 7 a.m. Awoke with sharp stinging pain in both eyes, and dull, rumbling, and colic-like pains in abdomen; numb, sleepy pain in legs, extending to soles of the feet, relieved by cold water and open air. 9 p.m. Great heaviness of both legs; knees feels weak; lame and tired sensation all over body. General relief from open air and motion. Most marked symptoms were heaviness and weakness of limbs; general lassitude; terrible erections; headache, which he never before had. (*N. Y. Journ. of Hom.*, ii, 154.)

3. J. E. T—, in good health, bowels regular, urine normal. I first tried 30th, 15th, 5th, with no effect. Jan. 29th, 4 p.m., 1 powder, 1st cent. 8 p.m. Dull pain in supra-orbital region, coming from occiput. Can't keep the eyes open in studying; general sense of lassitude. Sleep restless, with terrible erections. 30th, 8 a.m., same pains continue; worse from movement and stooping. Great weakness in lower limbs. 31st.—No more symptoms. 4 p.m. 1 dose, 1st cent. 10 p.m. Slight frontal headache, with sickness at stomach as from a

weight. Feb. 1st.—Long-continued and violent erections all night. 2nd, 2 p.m., 1 dose, 1st. 7 p.m. Numb sensation in lower limbs. Sleep restless. Erections like h—, violent, strong, and long-lasting, which I thought would surely rupture penis; followed by profuse seminal emissions. 3rd.—Dull pain in supra-orbital region. Soft, light coloured stool passed with much straining. 6 p.m. Heavy, dull pain in small of back. 5th, 8 a.m., 1 dose, 1st. 2 p.m. Dull, heavy supra-orbital headache as before. 9 p.m. Very sleepy, can't keep my eyes open. Urine increased, and of a light amber colour. Numbness in l. foot. 6th. Violent erections all n., could not sleep for them; had to get up, walk about, and bathe parts in cold water. Pains in calves of legs lasting all n. Dull, heavy headache, lasting all d., coming first on r. side, then spreading to l. 7 p.m. Urine increased and of a light colour. Great weakness and heaviness of lower limbs. 7th, 8 a.m., 1 powder, 1st cent. 12. Pricking sensation, as from needles, in legs and feet. Soft stool with much tenesmus. 8th, 9 a.m., 1 powder, 1st. 8 p.m. Pressure over both eyes; worse from studying and motion, better from sitting still. Sleep broken up by violent erections, lasting all n.; had to sit up. 9th, 2 p.m., 1 powder, 1st. 9 p.m. Very sleepy and tired; head feels dull and heavy; feet feel as if frostbitten; calves of both legs feel lame and sore. Urine still pale and increased. Sleep restless, and violent erections. 10th, 11 a.m., erections with severe pain in left testicle, as if bruised, extending up cord as far as external abdominal ring. 12 m. Dizziness and vertigo, lasting ½ h., worse when rising up from sitting position. 11th, 8 p.m., took 1 dose 1st. Sleeplessness all night. Arose at 3 a.m. and took a dose of coffea, without effect. Feb. 12th, dreaming all night, but without the usual terrible erections. (*Ibid.*, p. 155.)

4. M. W. G—, nervous temperament, æt. 24. Feb. 9th, 1874, 10 p.m., 1 dose of 5th. 10th, 10 a.m., twitching of lower portion of biceps of l. arm lasting ½ h. 12 m. Sensation of fulness and heaviness of head, with disinclination for mental or physical work; desires to sit still; aversion to talking or movement; fulness and heaviness increased till 2 p.m., when it developed into a severe throbbing headache; worse on l. side, but chiefly in l. eye and occipital region; markedly aggravated by going upstairs, which causes intense throbbing pain in eyeball. 4 p.m. Headache relieved; nausea, accompanied by intermittent griping pains in the epigastric region, continuing until n. Feb. 11th.—During forenoon, at intervals, twitching of biceps of l. arm as before, with fulness and heaviness of the head, followed by throbbing pains in eye and occiput (l.), but not as marked as before; dulness and indifference; disinclination to talk and study; takes no interest in surrounding things. Feb. 16th, 10 a.m., 1 dose of 5th. 2 p.m. Fulness and heaviness of the head, with disinclination to do anything; followed by severe headache as on 10th; small furuncle in l. nostril. 6 p.m. Severe pain in l. inguinal region on walking, aggravated by going upstairs; great heaviness and weakness of lower extremities; aggravation between 10 a.m and 2 p.m. (*Ibid.*, p. 157.)

5. Mr. Sullivan, in good health; urine acid and normal. Jan. 6th, took 1 dose of 5th. 7th, 3 p.m., scanty soft stool, with burning

at anus. Dull pain in anterior muscles of thigh, and in lumbar region, with feeling of lassitude and weakness in same, especially in legs, aggravated by moving. 7 p.m. Dull, steady frontal headache, with vertigo when rising and walking. 8 p.m. Full, pressing sensation in head from within outwards, as if head would fly apart; greatly aggravated by motion and study. 8th.—Weakness and heaviness of limbs. (*Ibid.*, p. 152.)

6. Three persons experienced symptoms from taking 30th, and one from 25th. These were substantially as above, save that furuncle in nostril of No. 4 became in two provers of 30th a crop of such on face, becoming pustular and very painful, burning and stinging when touched. (*Ibid.*, p. 149, 151, 152. 156.)

7. S. O. Garmon, æt. 32, took daily doses of 2x dil., increasing from 10 drops on 1st d. to 30 on 7th, thence declining to 20 from 9th to 11th d. On 1st d., 30 m. after dose had tingling feeling in lips and slight dull throbbing pain in l. temple; in 2½ h. formication over r. temporal region, running up over parietal bone, preceded by pain there, running behind ears; also irregular, dull pain in inferior maxilla, with beating in molar teeth; in 7 h. fulness in abdomen; in 9 h. shooting pain through l. umbilical region from before backwards. On 2nd d. tingling, throbbing, and formication came on 1 h. after dose; in 2½ h. disagreeable pressure as of weight in pit of stomach, desire to belch wind without power to do so; in 4 h. disagreeable dull headache, severest over r. temple, passing around occiput. On 3rd d., after 4½ h. sharp pain in epigastric region; in e. much flatus, and some in the umbilical region. On 4th d. rumbling and much flatus. On 5th d. nothing noticed. On 6th d., dull pain diffused throughout head; some pain in abdomen and neck of bladder. On 7th d., dull general headache, most in r. side, with occasional shoots through temples from r. to l.; much flatus and rumbling, and quite a sharp pain to l. of umbilicus. On 8th d., appetite, hitherto increased, went away; he ate as usual, but without relish; lassitude, and disagreeable feeling generally. On 9th d. slight full headache; on 11th much flatus.* (Dr. S. A. Jones' provings, Allen's *Encyclopædia*, vi, 519.)

8. J. A. Baker took daily for 5 d. 10 drops of 1x dil. in m. For first 3 d. head was heavy and hot, and in 30 m. after dose dull pain came on in forehead and temples, worst on r. side; there was oppressive feeling in epigastric region, palpitation, irregular pulse, and very hot feeling in lower dorsal and lumbar region. Also, on 2nd d. low spirits; tired feeling; on 3rd d. felt unable to study from pain in head; and had frequent eructations; on 5th d. increased flow of urine. From 6th to 10th d. took 15 drops daily, and same three times on 11th. On 6th d. had trembling in all muscles; on 6th and 7th head bad in e.; on 9th and 10th also head ached. On 11th there was a pressure between temples, increased after 3rd dose; on 11th urine again increased. On 12th took 20 drops three times; low spirits, headache, copious urine; palpitation after 1st dose, burning along coronal suture after 2nd, after

* The prover also had some unique urinary symptoms, which Dr. Jones gives with reserve, viz. in e. of 3rd d., urine dark red; on 5th d. urine dark, sp. gr. 1030, copper and fermentation test gave indications of sugar; on 5th and 10th d. very highly coloured.—Eds.

third burning along spine, worse from trying to study, better from motion. On 13th d. took 3 doses of 25, 30, and 20 drops respectively. Had diuresis and epigastric oppression as before; after 1st dose, headache, with heat in head, and rheumatic pains in joints and extremities; after 2nd heat in upper eyelids with lachrymation, jerking drawing in urethra, palpitation, great trembling of muscles and general debility, with drowsiness in afternoon till he had slept 1 h., heat in r. side of head and in lower dorsal and lumbar regions; after 3rd dose very irritable. Beating of temporal arteries was noticed on several days during proving; the head symptoms continued some time after discontinuance of drug. (*Ibid.*)

9. J. D. BAKER, æt. 37, took 10 drops of 1x dil. daily for 10 d. On 1st d. dull headache in front and r. side, with heat in head and upper body (2 h. after dose); in e. pain in head, with some thirst and heat, chiefly in temples, and burning in external ears. On 2nd d. profuse urine; about 11 a.m. pain in vertex, with slight fever. On 6th d. urine was scanty, and there was itching of body during n.; he awoke at 3 a.m. and found it difficult to go to sleep. On 8th d. urine became dark yellow with strong odour. On 10th d. eyes felt sore; sight was dim and confused; there was "intense raising of wind"; urine was scanty and dark yellow; pain in lumbar region; shooting pains in hands; numbness of whole body, with pains, as felt when taking cold; pain in r. side; slight fever and dull headache: went to bed at 9, but could not get to sleep till 2. Next d., great desire to be alone; severe headache all d., aggravated on rising, better in open air; disgust for food, and some thirst, pain in back. On 12th d. repeated dose: pain in back continued, worse when sitting; bitter taste in mouth, with great thirst; urine yellow and profuse. On 13th and 14th d. took 20 drops: thirst continued, urine was very profuse, l. hand went to sleep. (*Ibid.*)

10. G. E. ADAMS for 16 d. took 10 to 40-drop doses of 1x dil., generally 4 times a d. On 1st and 2nd d. slight headache after taking medicine; all e. of 2nd, headache, frontal, extending to vertex, of dull heavy tingling character; slight colicky pain. On 3rd d. this worse all forenoon, with same headache; two stools before 9 a.m., like gruel, yellowish grey; urine much scantier than usual. Nothing then noted till 8th d., when he had recurrence of headache in e. lasting all next. d.; pain dull, with occasional shoots. From 8th to 10th eyes were dry and smarting, worse from use and lamplight. On 11th d. headache in vertex, vertigo on stooping or lying down, head feels congested. On 12th d. shooting in front part of head, from outside to centre, quite severe all e.; slight pain after micturition. On 13th, vertigo worse in e.; frontal headache all d.; urine of milky-olive hue. On 14th headache continued; numb sensation in lower sternum (a symptom experienced much when living in a malarious country). On 15th headache worse, continuing during 16th, relieved by open air. On 16th had a peculiar nervous symptom, never experienced by him save when a fever was departing, a feeling as if he were about to be crushed by the bedclothes; also arms, face, tongue and fore part of brain seemed to reach to clouds when going to sleep. (*Ibid.*)

11. *a.* G. A. TABER, æt. 23, took from 10 to 20 drops of 1x dil. 6 times during 3 d. Seems to have noticed no effects save that pimples which he had had on face and neck for several years were (on 4th d.) remarkably increased in number and size.

b. In a second proving, took 1x and 2x dils. during 4 d., and 1x trit. on 8th and 9th d. On 2nd d. dribbling after urinating. On 3rd found urine passed during previous 24 h. with heavy deposit of urates; and in e., while walking, sense of great fatigue came on lasting till n., legs feeling heavy. Next d. still got tired on least exertion; in afternoon, soreness in ball of l. great toe, going off on exertion; in e., for 1 h., pain in lower r. occiput, as if r. cerebellum was loose, keeps throbbing, worse on movement, better at rest; also momentary sharp pain in r. bladder. On 5th d. sensation as of strong pressure on bridge of nose; feeling as if plug were in throat during and after empty swallowing; still easily tired; constant dreaming during n. On 6th d. could not keep thoughts to study, and brain soon tired; notes that this is 4th m. in succession that he has awoke with an erection; on lying down, in aft. and at n., feeling as if r. neck muscles would give out. On 7th d. found urates again as on 3rd. On 8th d., in e., pain in r. lower occiput, and slight shooting in r. side of small of back; could not get to sleep till late from ideas crowding into mind. On 9th d. same headache extending upwards over to r. supra-orbital region, for 3 h.; great prostration on walking. On 10th, brief recurrence of occipital pain. Nothing further recorded till 13th d., when he had cold clammy sweat of hands and feet in daytime; this recurred on most of the succeeding days up to the 20th. Therewith, on 14th d., the occipital pain, and great prostration on walking or making least exertion; on 15th, pain from scapula to loins (r.) on bending forwards; same prostration on walking; on 16th, heaviness of lids and burning in eyes (e.); while reading sight is blurred, seemingly from winking mucus over eyes, the air also appears smoky; heaviness and weariness of limbs on walking short distance; on 17th, agglutination of lids in m., conjunctivæ, especially r., much inflamed, hard work to keep eyes open, relief from cold water or air, aggravation in warm room; throat sore, worse on l. side, rough, scrapy sensation on swallowing, better after eating, worse after sleep; still easily tired; on 18th, on awaking, eyes felt as if there were sticks in them, but inflammation had partly subsided; throat sore only on empty deglutition; on 19th, occipital pain again; on 20th, sensation as of sticks in eyes.

c. In a third proving, for 3 d. took 3x and 2x trits., from 4th to 10th d. increasing doses of 1x. On 3rd d. occipital pain recurred (for 1¾ h.), and again on 4th (for 1 h.); on this d. dull pain at cardiac orifice of stomach while breakfasting. On 5th occipital pain came and went all d.; in m. more frequent micturition than usual; at 1 p.m. prostrate feeling after short walk. On 6th, same symptoms without headache; also (and on 5th as well) frequent dull pain on small spot in r. calf, which at length became tender. On 7th, yellowness of eyes. On 8th, prostration of mind after writing awhile, occipital pain, slight nausea for 1 or 2 h. after taking drug. On 9th and 10th d. occipital pains. (*Ibid.*)

12. F. W. White. *Health.*

Date.	Urine.	Sp. gr.	Reaction.	Urea.	Uric ac.	Phosph.	Sulph.	Chlor.
May.	Cub. c.			Grms.	Grms.	Grms.	Grms.	Grms.
8—9	1725	1011	Acid	18·1125	·10350	3·36575	2·25975	11·2125
9—10	1620	1012	"	19·4400	·06804	4·53600	2·39760	12·3120
10—11	1205	1010	"	15·6650	·07953	2·59075	1·85160	9·1580
11—12	1390	1014	"	27·8000	·46704	3·33600	2·66880	11·3980
12—13	850	1020	"	18·2750	·12580	2·50750	1·71700	6·8850
13—14	1440	1·01270	"	20·8800	·10080	2·30400	1·81440	14·4000
14—15	1400	1·01090	"	15·4000	·03080	3·50000	3·41600	15·9600
15—16	1260	1·01310	"	15·1200	·08064	2·33100	2·21760	10·3320
16—17	1320	1·01250	Neutral	18·4800	·03960	2·97000	2·00640	15·8400
Total	12210·00			169·1725	1·09575	27·43900	20·32915	107·4975
Mean	1356·66			18·7969	0·12175	3·04877	2·25879	11·9441
				Medication.				
17—18	530	1·02210	Acid	15·1050	·09540	3·127	1·6748	4·770
18—19	1080	1·01210	"	23·7600	·15552	4·860	2·3760	4·752
19—20	1170	1·01390	"	22·2300	·19890	6·201	2·1996	7·956
20—21	1680	1·0440	"	23·5200	·45360	4·284	3·2928	8·064
21—22	1790	1·00532	Neutral	15·2150	·17542	4·833	2·5060	8·950
22—23	2030	1·00916	Acid	21·0125	·39770	6·560	1·7220	9·020
23—24	1520	1·00600	"	15·9600	·41344	4·104	1·6416	6·992
24—15	1955	1·00700	"	17·1062	·50830	5·474	2·0332	10·166
25—26	1710	1·01050	"	17·6643	·47880	4·275	1·7100	8·550
Total	13485·00			171·5730	2·87708	43·7180	19·1560	69·220
Mean	1498·33			19·0636	0·319675	4·8575	2·1284	7·6944
				Elimination.				
26—27	1210	1·0131	Acid	23·385	·39930	2·5410	1·9602	5·566
27—28	1260	1·0119	"	19·215	·16380	2·2050	1·8648	7·308
28—29	1245	1·0093	"	17·430	·28386	2·8012	1·9422	8·466
29—30	1190	1·0156	"	22·015	·27846	1·7255	2·6656	9·520
30—31	875	1·0131	"	15·312	·17850	1·9687	2·0648	7·000
31—1	1170	1·0159	"	17·936	·38376	1·7550	1·8720	10·296
1—2	850	1·0141	"	16·150	·29750	2·1250	1·4790	8·500
Total	1800·00			131·443	1·985180	15·1214	13·8486	56·6560
Mean	1257·14			18·777	0·283597	2·1602	1·9783	8·0937

(*Ibid.*)*

	Urine.	Urea.	Phosphates.	Sulphates.	Chlorides.
13. J. Amos.	Cub. c.	Grs.	Grs.	Grs.	Grs.
Health	666	338·3	17·4	55·80	93·
Average in medication . .	1125	466·2	31·42	63·38	116·2
Result	+459	+128·2	+14·02	+7·58	+23·2
14. Mr. Conger.					
Health	733	332	57·3	38·0	155
Average in medication . .	1172	531·7	71·73	44·64	184
Result	+439	+199·7	+14·43	+6·64	+29
15. A. Sawyer.					
Health	833	231·5	26·4	39·7	90·2
Average in medication . .	1020	535·9	29·1	64·14	100·9
Result	+187	+304·4	+2·7	+24·44	+10·8

(Couch, *Hom. Times*, 1878, p. 100.)*

* These tables are given by Drs. Jones and Couch without explanation, but the dosage was probably semi-substantial and repeated.—Eds.

III. *Experiments on animals.*—1. *a.* A solution of ℥ss of the crystals in ℥ij of alcohol was given to a cat for four days, at first in ʒij doses, finally in one of ℥j. A few hours after the last she died. The symptoms were gradually increasing unwillingness to move about, the limbs at last becoming quite limp; and vomiting and diarrhœa, the stools dark and very offensive. *Post mortem*, the pyloric end of the duodenum, with the mesenteric glands, were congested bluish-black; and the cerebellum, medulla oblongata and upper part of the cord were "completely disorganised, soft and pulpy." The cerebrum was but slightly softened, the lower cord not at all. (COUCH, *N. Y. J. of Hom.*, ii, 145.)

b. A series of 2, 3, and 4-drachm doses of the solution were given to a strong healthy dog during ten days, when he died. The symptoms were the same, with the addition of dyspnœa, salivation, and "bloody urine" passed with much straining. The paralytic symptoms were conjoined with some of spasmodic character; *e.g.* 5th day: "Lies down constantly when not disturbed and made to stand up; when lying, weak tonic followed by clonic spasms; muscles of legs and back twitch spasmodically; pupils dilated. 6th day: trembling, wavering, cannot stand firmly; muscles twitch spasmodically; keeps his legs wide apart when standing; looks steadily at objects as if unable to make out what they are." The autopsy disclosed a similar condition of the nervous centres; the muscles of the hind legs thin and wasted; and the left lung the seat of congestion above and grey hepatisation below. (*Ibid.*)

c. In later investigations of same kind, entire anæsthesia and analgesia of posterior extremities was noted. Under the influence of the drug the animals display great weakness and lassitude; especially is this noticeable of the hind legs, they being scarcely able to support the already attenuated body, which sways constantly from side to side; the tail, too, is as limp as a wet rag, and cannot be made to either wag or curl. As more of drug is absorbed these symptoms become more and more prominent, the animal falls over at the slightest push and seems unable to rise. His whole aspect is now one of the greatest terror; the fur on the neck is erect and bristling; the eyes are prominent and staring; the head is turned quickly from side to side as if fearing a deadly attack from some dreadful unseen enemy; the gait, too, is peculiar, resembling somewhat that of locomotor ataxia. This is due to sudden spasms of individual muscles during the act of walking. On being urged to run three or four feet, he seems as if suddenly pulled back upon his haunches by some unseen force. The spasms now become general, involving all the voluntary and some of the involuntary muscles; the whole body becomes convulsed, respiration is stopped, opisthotonos sets in; after 2 m. muscles relax and respiration is slowly established. A slight rustling, a jar, or other noise is sufficient to produce a recurrence of the above phenomena. If rest and quiet are allowed, the animal may perfectly recover. If, however, too large a dose has been administered the spasms recur more and more frequently, till death finally occurs from prolonged spasms of the muscles of respiration. During the later stages of the poisoning, clonic spasms of the

jaws occur with sufficient force to cause the sound of clashing teeth to be heard fifty feet or more away. (IBID., *Hom. Times.*, April, 1878.)

d. In these experiments the pulse and respiration ratio showed a marked similarity to the phenomena following section and consequent paralysis of both pneumogastric nerves. (*Ibid.*)

e. Dr. Couch examined ophthalmoscopically eyes of four dogs poisoned by acid, and found in all venous congestion. On one sent to him for examination, Dr. Norton reports:—"Oct. 12.—This m. I examined the eyes of a dog chronically poisoned with p. acid, that Dr. Couch had sent me. Pupils dilated with atropine. Ophthalmoscopic appearances of the two eyes are similar, refractive media clear, optic nerve apparently slightly hyperæmic, retinal vessels, especially veins, enlarged. Thin streaks of reddish colour in choroid, probably physiological, and due to want of pigment; above optic nerve in particular, immense white patches of exudation are observed, with some hæmorrhagic spots. It is impossible to say whether they are in the retina or choroid, as there are several points in favour of each.

"22nd.—This m. the dog's eyes were sent to me for microscopical examination. Optic nerve entrance much swollen and infiltrated; masses of yellowish-white exudation are observed, extending from the nerve into the various portions of the retina; others are unconnected with the nerve-entrance. In some places these points have a white glistening look, but generally partake of the appearance noted above. The whole retina appears as if infiltrated; small extravasations are found in the optic nerve and in the retina. The choroid was normal as far as examined. Owing to an accident the different retinal layers could not be seen." (*Ibid.*)

2. [Christison relates, from Buchner, some experiments made with drug by Rapp, under its old name of carbazotic acid. As, however, not the pure crystals, but the yellow liquor from which they are procured, was employed, we have not used them here.—EDS.]

ACIDUM SALICYLICUM. See SALICINUM.

ACIDUM SULPHURICUM.

Sulphuric acid. H_2SO_4. A product of the oxidation of sulphur, usually obtained by its combustion and subsequent treatment by nitrous vapours.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part 5 of original, vol. of English translation. Contains 513 symptoms from self and 5 fellow-observers, and 8 from authors. Of these 5 belong to a typhoid fever from which the patients taking it were suffering. The others—"salivation," "aphthæ in mouth," and "hiccup"—seem genuine effects of acid, and last repeatedly recurred after administration of clysters containing it.

2. Dr. D. COWLEY (now of Pittsburgh, Pa.), æt. 24, sanguine-nervous temp. July 17th, 1855, being a very warm day, he had a

craving for something acid, and put 3 or 4 drops of dilute sulphuric acid into half a tumbler of water, and drank it down. Immediately after had slightly cutting pain in l. arm, extending whole length of it, and lasting a few seconds, perhaps 1 m. In a few m. slightly cutting pain from stomach into hypochondria. In ½ h. slight cutting pain in region of cæcum, lasting 2 or 3 m. In 1 h. slight pain in l. thigh near knee, feeling as though it would soon become cutting; also slight feeling of tension in scalp and ear of l. side, more in front of ear, lasting a few m. (*Communicated.*)

II. *Poisonings.*—1. *a.* The local effects of the acid on the alimentary canal are chemical. That it is absorbed into the blood is shown by increased elimination of sulphates in urine; but it is not found there in a free state during life.

b. In the urine, passed naturally or by artificial aid, very large amounts of albumen and casts have recently been detected (Wyss, Mannkopf, Munk and Leyden, and others). Still, albuminuria has not as yet been recognised by all observers as a constant symptom of acute sulphuric acid poisoning (Smoler found it but once in fourteen cases). . . . Recently Mannkopf has observed, in several cases of poisoning, neuralgic affections of the abdominal and intercostal nerves; also, in isolated cases, extended and severe hyperæsthesia over the whole trunk, symptoms regarding whose pathogenesis we are as yet entirely in the dark. In the different cases they developed at different times, between the 8th and the 22nd d. after the poisoning. After death, the liver has been found in a state of fatty degeneration, the kidneys in that of parenchymatous nephritis. (BOEHM, *Ziemssen's Cyclopædia*, xvii.)

ACIDUM TARTARICUM.

Tartaric acid. $C_4H_6O_6$.

I. *Provings.*—1. NENNING. (See *Acidum hydrocyanicum.*) Seems to have taken a substantial dose, and had symptoms of irritation of mouth, throat, stomach and bowels, with confusion of head (1 h.); drawing pain on soles near heel, which hinders his putting feet to ground; weakness, especially of lower extremities, and general cold sensation at n. in bed. He felt better in open air. (*Prakt. Mittheilungen*, 1827, p. 27.)

II. *Poisonings.*—1. Man swallowed ℥j in Oss of warm water. Complained immediately of burning sensation in throat and stomach, "as if he were on fire." Vomiting set in, and continued till death 9 d. after. On inspection nearly whole alimentary canal was found highly inflamed. (TAYLOR, *Poisons*, sub voce.)

III. *Experiments on animals.*—1. POMMER found that when 15 grs. in ℥ss of water were injected into femoral vein of dog in 4 doses, difficult breathing and discharge of fæces and urine were produced after each operation, and death ensued without any other particular symptom. Heart continued contractile long after death, and no change was found in blood. (CHRISTISON, *op. cit.*, sub voce.)

2. MITSCHERLICH found that while animals were under influence of poison, respiration was accelerated, and it then became laborious and slow. Great debility was a prominent symptom, and it soon ended in paralysis, death being preceded by slight spasms. In the fatal cases, it was not found to excite inflammation of small intestines. (TAYLOR, *op. cit.*)

ACONITUM.

Aconitum Anthora, L.: *A. Cámmarum*, L.; *A. ferox*, Wall.; *A. Napellus*, L.* Wolfsbane (A. Napellus), Monkshood, Blue rocket, Helmet flower. Nat. Ord. *Ranunculaceæ*.

I. *Provings.*—1. HAHNEMANN, *Fragmenta de Viribus Medicamentorum Positivis*, 1805. Contains 138 symptoms observed by self, and 75 from authors.

2. IBID., *Mat. Med. Pura*, vol. i of original and translation. Contains 431 symptoms from self and 7 fellow-observers, and 110 from authors.

3. A. BR—, a healthy peasant girl, very robust, æt. 22, took on successive d. 5, 10, and 20 drops of tinct. without effect. On 18th Jan. took 30 drops; confusion of head, feeling of heat in e. 19th.—40 drops; after 2 h. confusion of head, sometimes changing into heavy feeling and pressive pain in crown and forehead; loathing, nausea, general malaise with painful heaviness in limbs. After 5 h. pressive pain in scrobiculus cordis, dry feeling in mouth, great thirst. Felt so unwell, head so confused, giddy, and painful, limbs so heavy, that she had to go to bed. Face hot, hands and feet cold; pulse contracted, hard, moderately quick. After 9 h. pressive pain in forehead, face turgid red, eyes sparkling, dry feeling in mouth, tongue moderately moist, slightly furred, no appetite, great thirst, oppression of chest, shallow quick breathing, with frequent deep breathing and sighing. No pains, but heaviness and fulness in chest, anxiety and palpitation of heart. Heart's beats strong, pulse fuller than usual, hard and strong, at same time moderately quick; skin warm, urine clear and reddish. After 12 h. heat and restlessness increased, tosses about from one side to another. In r. thorax some pressive pain. After 16 h. (9 p.m.), more tranquil last h., general warm sweat. Headache, throat, and breathing difficulties relieved. Pulse large, soft, and slow. Only confusion of head and perceptible beating of heart complained of. 11 p.m. Sleeps sound and quietly. No stool since yesterday morning. Ate nothing all day. 20th Jan.—Slept quietly all night, skin moist on waking. Somewhat fatigued and head rather confused, this went off during d. (HENCKE, *Archiv f. Hom. Heilk.*, xx, 1.)

4. Dr. C. HENCKE took, 1st Oct., 1841, at 6 a.m., 4 drops of tinct. in a teaspoonful of water. Some pressure in stomach after 1 h. 2nd, 6 a.m., 8 drops in 1 oz. of water. Pressive pain in stomach (after 1 h.) lasting 1 h. Heaviness and fulness in chest when walking; he felt as though the chest could not be expanded, compelling him to breathe deeply often (forenoon). 3rd, 6 a.m., 10 drops. Increased full feeling in chest when walking. Palpitation of heart felt when walking; flying stitches in cardiac region, sometimes felt when at rest. Tiresome pressure on crown (forenoon). 4th, 6 a.m., 24 drops. Tiresome pressive headache, first in crown, then in forehead, where it caused feeling of heaviness and fulness, lasting several h., aggravated

* Where no species is mentioned, it will be understood that the *A. Napellus* was employed.

by movement (forenoon). Flying stitches in chest here and there; full feeling in chest; pressive pains on sternum; some palpitation of heart when walking and frequent deep breathing. Three liquid stools of fœtid dissolved fæces during d. Icy cold feet (e.). 5th, 6 a.m., 30 drops. Headache, full feeling. Three watery stools with slight griping. Urine passed in morning brown, on standing turbid, and with dirty brown sediment. Feet and hands icy cold (e.). 6th.—Many confused dreams during past night. The feeling of weight and fulness in chest more troublesome, compels him to breathe deeply even when at rest, accompanied by internal restlessness, anxiety, and palpitation of heart. Pressive pain in region of heart. Three watery stools with rumbling in bowels and qualmishness. 7th.—Dreamt much at night. Oppression of chest, internal restlessness, palpitation of heart, even when at rest, pressive pain in cardiac region as yesterday. Confusion of head, pressure in forehead, frequent heat in face, cold hands and feet, especially e. Indisposed to mental exertion. Two liquid stools with qualmishness and rumbling in bowels. 8th.—Many dreams. Great confusion of head and pressive pain in forehead on waking. Frequent deep breathing while driving. The weight and full feeling in chest, internal uneasiness, palpitation, &c., went off on taking exercise in open air. Qualmish feeling in abdomen. Great feeling of hunger, renewed after eating. No stool. 9th and 10th.—Symptoms gradually went off. (*Ibid.*)

5. N—, married, choleric temperament, in good health. *a.* Proved mixture of 2 drops of tinct. to 40 of water. 1st d.—At 7.30 p.m. 8 drops. Soon afterwards drowsiness when driving, eyes closed for some seconds. After ¾ h., several times in a few m., violent spasmodic yawning, repeated at 10 p.m.; fell fast asleep in chair till 1 a.m. 2nd d.—At 6 a.m. hurried call to stool, with copious soft evacuation with straining; no other symptoms.

b. Some days later same mixture. 1st d.—At 2 p.m. 8 drops, at 6 p.m. 5 drops, at 7.30 p.m. 20 drops. Soon afterwards violent yawning without drowsiness; great laziness and faint qualmishness, no actual nausea. Painful rumbling in bowels and discharge of flatus, with relief. After one h. urging to stool, copious evacuation, followed by some straining. 2nd d.—Dry, short cough, several soft stools, with hurried urging.

c. Some days later proved solution of 5 drops in 30 drops of spirit. Of this 8 drops m., noon, and e. Nothing observed but slight emotional disturbance, flushes of heat, especially in face and ears, slight pressive pain in head in r. frontal protuberance, spreading to upper orbital border, soon going off. (*Ibid.*)

6. W—, æt. 19, phthisical habitus, sanguine temperament. Took, 2nd Oct., 4 drops; 3rd, 8 drops; 4th, 10 drops; 5th, 12 drops of tinct. On 5th confusion of head, pressive pain in sinciput, heaviness in forehead. 6th, from 8 to 10 a.m., three liquid stools with severe griping. During day increased headache, heavy feeling in chest, difficulty of breathing, frequent palpitation of heart. 7th.—Pressive pains in head with pressure on eyes; two watery stools in d. with severe cutting in bowels; frequent dry cough, occasionally with expectoration

of bright red blood, but without pain in chest. 8th.—Headache continues; sleep but little disturbed by cough; heavy feeling in chest; difficult breathing, sometimes sighing; strong palpitation of heart; dry cough, with occasional expectoration of bright red blood; one loose stool. 9th.—Cough with slight bloody expectoration; breathing oppressed as yesterday; somewhat exhausted; internal anxiety; little appetite. 10th.—Only cough, not severe, no blood expectorated. 11th.—The cough continued, growing gradually less till the 15th, when it went off. (*Ibid.*)

6*. *a.* Dr. F. H. ARNETH took, 26th Feb., 1843, 10 drops of tinct.* fasting. Some h. afterwards 20 drops. Nothing felt but burning on tongue. 21st, fasting, 15 drops. Immediately burning on tongue, great pressure and sometimes shooting in anterior, not superficial parts of eyeball. 22nd, m. and e., 20 drops. 23rd.—At noon 30 drops. Almost immediately same pains in eye, occurring several times during day. From 26th (though no medicine was taken since 23rd) signs of a chill, severe coryza, shivering over back, especially in e.; slight oppression of breathing, with slight pressure under sternum, sometimes flying heat, quick, rather full pulse, &c.; nights very restless, with vivid dreams of things that happened during the day. 28th, m. and e., 25 drops. Moderate increase of all the described symptoms. 29th.—In forenoon 40 drops. Besides above symptoms, immediately after taking medicine some pinching about navel, as after taking manna, soon followed by easy, painless diarrhœa, later pressive pain on r. eyebrow. Towards e. the febrile symptoms increased greatly, for which he took (not knowing the medicine he was proving) some globules of acon. 7. The next night restless, with dreams about his patients. Feeling no better he took on m. of 30th some globules of acon. without relief. The febrile state lasted till 8th March, with all the previous symptoms. On 7th March the difficulty of breathing increased, especially on l. side of chest in cardiac region, with intermitting pulse; five beats were always hard, full, in rapid succession, the sixth was an intermission. This lasted all d. He got pale, emaciated, his gait and whole appearance betokened illness, and this was observed by others. Burning along urethra when urinating. 9th.—Feeling of shortening of tendons in hough, pain in l. patella as from a bruise. This lasted the 10th and 11th. On 12th, for more than 10 m., peculiar feeling in eyes, like that felt by amaurotics in first stage, a warmth and undulation in both eyes, with involuntary half closure of lids, and, though the room was quite light, felt as though he could not read for want of light; he could read, however. 13th.—Slight drawing in r. shoulder that went off by noon, but was followed by tearing and drawing, with lameness in head of l. humerus for 2 h. 15th.—Feeling of shortening of both tendines Achillis; had a difficulty in standing quite erect after sitting some time, knees gave way. This lasted nearly 3 weeks, and only went off 5th April.

b. On 5th April took in m. fasting and about noon, each time a

* The tincture used in the Austrian provings was the Hahnemannian, prepared by mixing the expressed juice of the whole plant with equal parts of spirit of wine.—EDS.

tablespoonful of 3rd dil.* Immediately pressive pain in frontal region, especially above r. eyebrow, with dread of being shaken while driving. The same after two like doses next d. 7th and 8th.—In m., fasting, and at noon a tablespoonful of 2nd dil., and on 9th and 10th as much of 1st dil. Nights very restless, dreamt of things that had occurred long ago, but of which he had not thought for years, so vividly, that after waking they were still before his eyes. Next m. always confusion of head and blowing bright red blood from nose. On 10th some confusion of head. He took nothing more, and felt thenceforward quite well.

c. On 20th took, fasting, 50 drops of tinct. No symptoms. 21st. —60 drops tinct. Blowing of blood from nose, pressive pain in head. 22nd.—80 drops. Eruption of vesicles on both temples, restless n. 23rd.—100 drops. Blowing blood from nose, violent twitching of extremities on going to sleep, which woke him up; restless n. Yesterday and to-day, immediately after the dose, violent inclination to vomit, which was allayed after breakfast. 24th.—130 drops. Immediately violent inclination to vomit, lasting till after dinner (4 p.m.), and great confusion of head. After this no more medicine and no more symptoms. (*Oest. Ztsch. f. Hom.*, vol. i.)

7. Dr. Böhm had suffered some years previously from hæmoptysis, and after great exertion still occasionally sees traces of blood in the sputa. *a.* He took on 3rd Feb. 5 drops of tinct. on sugar. Immediately burning, acrid, dry feeling on soft palate and fauces, not going off after breakfast, and causing frequent empty swallowing. After 1 h. frequent empty eructation with sourish taste; tickling in larynx causing cough. At noon want of appetite, empty eructation; after eating, discomfort and pressive feeling in scrobiculus cordis and upper abdomen. Towards e. hunger; frequent stitches in middle of sternum, with very cheerful humour. Sleep at n., though uninterrupted, appeared so light and superficial that in the m., though he did not feel tired, he thought he had not slept at all. All symptoms, except those of digestion, lasted on 4th, and at n. felt as if he slept in the air and had no firm support. 7th.—At 4.30 p.m. 10 drops in water. Immediately empty eructation, slight pressure in stomach. After 3 h. dry feeling in fauces, with much thirst, as if water did not sufficiently moisten surfaces it touched. Feeling of weariness and exhaustion in chest, though he talked little all day; slight fatiguing cough. 8th.—After coughing hawked up mucus streaked with blood; on posterior surface of sternum constant feeling of soreness all day, as though he had been struck; in e. greatly increased warmth of palms and cheeks. Went early to bed, and could with difficulty fall asleep on account of great excitement, which he sought to allay by drinking much. Next m., after light sleep, not rested; all d. burning in eyes. The sensitiveness of chest lasted, with gradually diminishing intensity, during the e.- and n.-fever till 12th Feb. By 13th he was quite well.

b. 22nd.—At 6 p.m. took 4 drops, without symptoms. 27th.—In m., fasting, took 30 drops on sugar. Soon afterwards burning on both

* The German dilutions are (unless otherwise specified) on the decimal scale, the mother tincture being the zero.—Eds.

sides of tongue, as from aphthæ; dryness on soft palate and constriction in gullet, not going off on drinking cold water. This lasted till afternoon and interfered with speech. Constant flow of saliva into mouth, and frequent risings from scrobiculus cordis; he feared nausea or vomiting. Distaste for wheaten bread. Frequent attacks of giddiness when walking and driving. Walking and speaking tire him, he feels very exhausted. At noon anorexia, tongue like leather, prostration in e., increased heat of skin, flying stitches along sternum and between ribs; he must go early to bed; sleep restless, broken, not refreshing. Though he had drunk much did not urinate at night. In m. urine red, and when passed burning in orifice of urethra. 28th.—Better after breakfast, but at 11 a.m. violent rigor spreading over back and chest, also recurring very disagreeably on least movement during subsequent great heat (with frontal headache). A violent cough with sharp stitches in various parts of thorax compelled him to lie always on his back, as lying on either side aggravated it. In e. as if stupefied and very cross; at n. restless, sweat after midnight with relief; urine as yesterday. 29th.—Though still exhaused and looking ill, went about his business. At 3 p.m. a repetition of febrile attack, but chill is weaker than yesterday, heat more moderate, pulse quick, 96, frequent cough, with shaking pain of whole chest, expectoration occasionally brownish red, rust coloured; sleep better, perspiration profuse, towards m. great relief. 1st April.—After constipation for 3 d. a normal stool; more frequent micturition, cough rarer, less painful, appetite normal. In afternoon attack of chill and heat, not lasting long; n. good. From this time the fever disappeared. For some d. pressive pain in forehead and drawing pain in right upper arm. (*Ibid.*)

8. *a.* Dr. GERSTEL took, 5th Jan., in m., fasting, 6 drops of tinct. in water without effect. 6th.—8 drops. Soon giddy confusion of head in r. side of forehead when walking in open air, bruised pain in nape on moving it, as if confined to certain muscles, especially in e. and at n. when lying down. The coryza, previously fluent, became dry. At n. in sleep feeling of dryness in mouth and fauces, compelling him to drink on waking. Soon afterwards profuse but transient sweat all over body, and continued unusual transpiration, and again in m. profuse transient sweat. 7th.—In m. 10 drops. Soon transient weariness of legs on commencing to walk. The pain in nape continues. 8th, m., 16 drops. For an hour cooling burning in fauces, afterwards in tongue as from pepper or saltpetre. Pain in nape continues. 10th, noon, 20 drops. Immediately hot feeling in chest, and disagreeable feeling about heart. The taste of pepper in fauces came later. 11th.—At 10.30 p.m., 20 drops. Slept restlessly or woke often with pepper taste in mouth. 12th, m., 27 drops. Some headache, pressive stupefying pain in frontal region, getting worse about 6 p.m. A pressing out in temple, with fulness in forehead and prickling and smarting in eyelids as in commencing catarrh; at same time flush of heat. Scraping in throat, and palpitation of heart. The pain in nape, which had ceased for three days, troubled him all day. 13th and 14th.—No symptoms. 15th.—Of 40 drops in a glass of water, with 100 drops of alcohol, took in m., fasting, a fourth part. Continued

pepper taste on tongue, flow of water into mouth, hot feeling in and over chest; pain in forehead and temples; eructation of air and nausea from stomach, going off after breakfast; violent palpitation of heart with disagreeable feeling in cardiac region; tickling itching on inner side of l. upper arm; burning and agreeable warm feeling along back of l. index; cold spreading over inside of lower limbs from middle of thighs downwards, especially on knees and feet, then pressing pain in l. temple, and pressure and digging in chin. After 1 h. bruised pain in middle of thighs, and unusual coldness of feet even in room and when walking. About noon took same dose. Immediately recurrence of the pain in l. temple, first a pressing, then a slight soreness, at same time feeling as if forehead and face, especially l. side, swelled. This feeling of swelling gradually spreads almost all over body, especially l. side, and is accompanied by many painful sensations, as bruised pain of muscles, bruised feeling or pressure in bones, sometimes in one or other rib, sometimes in l. arm. The l. side of forehead, face, arms, and upper part of chest is longest affected; at same time crampy feeling at heart. Whilst l. cheek feels swollen and hot it is cool to touch; formication in r. cheek and r. forearm. From l. side of face sensation spreads to ear, as if something lay before it, but pain seems to be in bone around auricle. Painful feeling in thigh and arms passes gradually into a numb sensation. About 4 p.m. a constant chilliness or even coldness over whole body, especially in feet and knees; occasionally when swallowing aching in r. Eustachian tube; soreness and itching in tarsal edges, and bruised pain in various parts of body. Pulse at 3.30 67, small, easily compressible; about 4 p.m. 74, beats stronger. About 5 p.m. pulse 102, full, and hard. Whilst feeling of coolness is predominant in lower limbs an agreeable warmth spreads over rest of body, with transient anxiety and warm feeling about heart. Bursting out of sweat over forehead and præcordium. Later sweat broke out all over body, especially on head, nape, chest, and abdomen, while feet remained always as if a cool wind blew on them. At same time a pressure on upper eyelids of both eyes alternately, and occasional sensation as if whole eyeball were pressed into orbit, so that eye pained as if contused. The heat of body, especially face (with red cheeks), and the tiresome pains in forehead, temples, eyes, and nape lasted all e., with very accelerated and strong heart's beats. About 6 p.m. moderate thirst. In e., good appetite, slept well, and in m. more sweat. 16th and 17th.—Took remainder of solution. On 16th felt slight sense of coldness, and on both days some lassitude and pain in nape, eyes, and head.

b. 23rd Feb.—40 drops of tinct. in water at once. After 1 h. shooting and drawing pain in l. upper and lower maxillæ, in r. molars, in both tibiæ and arms, but especially in l. side of nape; at same time feeling of swelling of l. cheek, pressure in stomach, empty eructation, burning on tip of tongue with flow of water into mouth, all in rapid succession. More constant was a penetrating shooting at lower end of inner side of l. forearm; heaviness and out-pressure in r. side of head with slight drawing burning pain in border of right lower alveoli. The very fine shooting or shooting burning pains as if in the skin, felt

sides of tongue, as from aphthæ; dryness on soft palate and constriction in gullet, not going off on drinking cold water. This lasted till afternoon and interfered with speech. Constant flow of saliva into mouth, and frequent risings from scrobiculus cordis; he feared nausea or vomiting. Distaste for wheaten bread. Frequent attacks of giddiness when walking and driving. Walking and speaking tire him, he feels very exhausted. At noon anorexia, tongue like leather, prostration in e., increased heat of skin, flying stitches along sternum and between ribs; he must go early to bed; sleep restless, broken, not refreshing. Though he had drunk much did not urinate at night. In m. urine red, and when passed burning in orifice of urethra. 28th.—Better after breakfast, but at 11 a.m. violent rigor spreading over back and chest, also recurring very disagreeably on least movement during subsequent great heat (with frontal headache). A violent cough with sharp stitches in various parts of thorax compelled him to lie always on his back, as lying on either side aggravated it. In e. as if stupefied and very cross; at n. restless, sweat after midnight with relief; urine as yesterday. 29th.—Though still exhaused and looking ill, went about his business. At 3 p.m. a repetition of febrile attack, but chill is weaker than yesterday, heat more moderate, pulse quick, 96, frequent cough, with shaking pain of whole chest, expectoration occasionally brownish red, rust coloured; sleep better, perspiration profuse, towards m. great relief. 1st April.—After constipation for 3 d. a normal stool; more frequent micturition, cough rarer, less painful, appetite normal. In afternoon attack of chill and heat, not lasting long; n. good. From this time the fever disappeared. For some d. pressive pain in forehead and drawing pain in right upper arm. (*Ibid.*)

8. *a*. Dr. Gerstel took, 5th Jan., in m., fasting, 6 drops of tinct. in water without effect. 6th.—8 drops. Soon giddy confusion of head in r. side of forehead when walking in open air, bruised pain in nape on moving it, as if confined to certain muscles, especially in e. and at n. when lying down. The coryza, previously fluent, became dry. At n. in sleep feeling of dryness in mouth and fauces, compelling him to drink on waking. Soon afterwards profuse but transient sweat all over body, and continued unusual transpiration, and again in m. profuse transient sweat. 7th.—In m. 10 drops. Soon transient weariness of legs on commencing to walk. The pain in nape continues. 8th, m., 16 drops. For an hour cooling burning in fauces, afterwards in tongue as from pepper or saltpetre. Pain in nape continues. 10th, noon, 20 drops. Immediately hot feeling in chest, and disagreeable feeling about heart. The taste of pepper in fauces came later. 11th.—At 10.30 p.m., 20 drops. Slept restlessly or woke often with pepper taste in mouth. 12th, m., 27 drops. Some headache, pressive stupefying pain in frontal region, getting worse about 6 p.m. A pressing out in temple, with fulness in forehead and prickling and smarting in eyelids as in commencing catarrh; at same time flush of heat. Scraping in throat, and palpitation of heart. The pain in nape, which had ceased for three days, troubled him all day. 13th and 14th.—No symptoms. 15th.—Of 40 drops in a glass of water, with 100 drops of alcohol, took in m., fasting, a fourth part. Continued

pepper taste on tongue, flow of water into mouth, hot feeling in and over chest; pain in forehead and temples; eructation of air and nausea from stomach, going off after breakfast; violent palpitation of heart with disagreeable feeling in cardiac region; tickling itching on inner side of l. upper arm; burning and agreeable warm feeling along back of l. index; cold spreading over inside of lower limbs from middle of thighs downwards, especially on knees and feet, then pressing pain in l. temple, and pressure and digging in chin. After 1 h. bruised pain in middle of thighs, and unusual coldness of feet even in room and when walking. About noon took same dose. Immediately recurrence of the pain in l. temple, first a pressing, then a slight soreness, at same time feeling as if forehead and face, especially l. side, swelled. This feeling of swelling gradually spreads almost all over body, especially l. side, and is accompanied by many painful sensations, as bruised pain of muscles, bruised feeling or pressure in bones, sometimes in one or other rib, sometimes in l. arm. The l. side of forehead, face, arms, and upper part of chest is longest affected; at same time crampy feeling at heart. Whilst l. cheek feels swollen and hot it is cool to touch; formication in r. cheek and r. forearm. From l. side of face sensation spreads to ear, as if something lay before it, but pain seems to be in bone around auricle. Painful feeling in thigh and arms passes gradually into a numb sensation. About 4 p.m. a constant chilliness or even coldness over whole body, especially in feet and knees; occasionally when swallowing aching in r. Eustachian tube; soreness and itching in tarsal edges, and bruised pain in various parts of body. Pulse at 3.30 67, small, easily compressible; about 4 p.m. 74, beats stronger. About 5 p.m. pulse 102, full, and hard. Whilst feeling of coolness is predominant in lower limbs an agreeable warmth spreads over rest of body, with transient anxiety and warm feeling about heart. Bursting out of sweat over forehead and præcordium. Later sweat broke out all over body, especially on head, nape, chest, and abdomen, while feet remained always as if a cool wind blew on them. At same time a pressure on upper eyelids of both eyes alternately, and occasional sensation as if whole eyeball were pressed into orbit, so that eye pained as if contused. The heat of body, especially face (with red cheeks), and the tiresome pains in forehead, temples, eyes, and nape lasted all e., with very accelerated and strong heart's beats. About 6 p.m. moderate thirst. In e., good appetite, slept well, and in m. more sweat. 16th and 17th.—Took remainder of solution. On 16th felt slight sense of coldness, and on both days some lassitude and pain in nape, eyes, and head.

b. 23rd Feb.—40 drops of tinct. in water at once. After 1 h. shooting and drawing pain in l. upper and lower maxillæ, in r. molars, in both tibiæ and arms, but especially in l. side of nape; at same time feeling of swelling of l. cheek, pressure in stomach, empty eructation, burning on tip of tongue with flow of water into mouth, all in rapid succession. More constant was a penetrating shooting at lower end of inner side of l. forearm; heaviness and out-pressure in r. side of head with slight drawing burning pain in border of right lower alveoli. The very fine shooting or shooting burning pains as if in the skin, felt

in various parts of body, were sometimes accompanied by a feeling of heaviness, numbness, or swelling. A continued disagreeable feeling about heart, as if a heavy body lay there; later it was pressive and burning with accompanying pressure and flush of heat over back. Heaviness and confusion of head with tiresome pressure on l. eyeball. In forenoon while walking in open air in foggy, muggy weather,—chilliness over both arms, especially l.; continued pressing pain in l. shoulder, apparently in conjunction with drawing and numb sensation in l. occiput and posterior external aspect of l. upper arm, followed by feeling of powerlessness of these parts, especially of the upper arm. About 11 a.m. when sitting still, agreeable warmth, especially from back over whole body, with moderate sweat. Continued weariness of legs, especially on going upstairs. When walking slight pains in upper abdomen and frequent fruitless calls to stool. Very frequent micturition; urine hot and high coloured. Sexual desire several times very excited. Went to bed at 2 a.m., was long of falling asleep, and sleep was not sound; vexatious quarrelsome dreams. 24th.—Had slept but little; in forenoon frequent attacks of colic, with distension of abdomen, relieved by discharge of flatus; at same time exhaustion, frequent slight chills over back and thighs, increased urine. Afternoon, during stool, cutting in bowels, which went through chest like sharp knife stabs, almost compelling him to cry out, at same time almost barrel-like distension of abdomen. After pappy stool relief, and after disagreeable feeling of burning and shooting about heart felt quite well. That n. quiet sleep. 27th.—½ h. after breakfast 40 drops in water at once. Immediately drawing in r. side of nape; feeling of pressure on instep of r. foot; as if something lay before r. ear; pressure in fauces. In forenoon frequent fine stitches, aching and stoppage in left ear, as in catarrh. Some of the symptoms, as those of the ear, the throat pain, the flush of heat, the shooting drawing pains in l. temple, &c., occur when entering the room, and go off when walking in open air. At noon nauseous taste at root of tongue, that goes off while eating and comes back thereafter; empty eructation; some pressure in stomach and fauces, with slight burning and flow of saliva. Afternoon, great discharge of flatus, at night horrible dreams. Next day, 28th, several recurrences of the disgusting taste in mouth, and repeated sexual excitement. 29th.—Well. 1st March.—At 11 a.m., 50 drops in water. Only a few transient symptoms occurred: weariness of legs, pressure in l. eyeball and r. orbital region; burning in fauces, pressure in stomach; griping in upper part of abdomen with distension of abdomen; somewhat increased transpiration with general warmth. Afternoon, uncommon feeling of comfort in whole body. (*Ibid.*)

9. Mrs. Gerstel, æt. 30, nervous constitution, sanguine temperament, always well except occasional periodic prosopalgia, nursing a baby 9 m. old. *a.* 10th Feb., 10 a.m., took 3 drops of tinct. in water. After 1 h. heat in palms and face, with redness of both cheeks and feeling as if face increased in size; frequent yawning; at noon, little appetite. After a short siesta in afternooon very pale face with icy coldness of hands. At 5 p.m. coldness over back and legs. At 7 p.m. face and hands warm again; pulse 68; heaviness in forehead and

parietal bones; noise is intolerable; coldness over limbs; a momentary drawing along thighs, with long-continued discomfort in knees, especially l., as after long stooping. All afternoon discomfort, as from deranged stomach; empty eructations; very little appetite even in e. 11th, at 10 a.m., 3 drops. Sleep stupefied, confused dreams; can hardly waken properly. 12th.—In m. head dazed; at noon some cold feeling in hands and feet; afternoon, heat in head, cheeks, and hands; variable temperature later; appetite good.

b. In April, the baby being weaned and the menses having occurred, took 20 drops of tinct. in water. No symptoms immediately. After several days there appeared on face, forehead, nape and other parts discrete itching vesicles, the size of a pin's head, coming out for a fortnight, repeatedly desiccating, scaling off, and then disappearing. (*Ibid.*)

10. *a.* Dr. MASCHAUER, on 28th and 29th Feb., 1 h. before breakfast, took each d. 5 drops of tinct; no symptoms. 1st, 2nd, and 3rd March, each d. 10 drops; each d. for 6 or 7 h. continued confusion of head; shivering all over body; the 1st d. only once, the other days he was so cold he could not get warm at the fire; nights restless. 4th, fasting, 15 drops; in half an hour, while sitting quietly, suddenly violent palpitation with tight feeling in chest; felt as if boiling water was poured into the chest, immediately afterwards icy coldness through him, he felt like to faint; this lasted 5 m. During d. frequently recurring shivering with violent headache in r. temple; n. sleepless. 5th.—Very weak and prostrated, but took in m. 15 drops; after 2. h. palpitation of heart lasting all d., worse when walking, better when at rest. At 5 p.m. headache, increasing till 8 p.m. to a violent pressure in both parietal regions, disturbing sleep, and lasting all 6th; continued shivering; felt very weak and ill; e. and n. somewhat better. 7th.—15 drops; all d. increased thirst, prostration, heat, and chilliness; in e. pressive headache in vertex, pulse full, 80 to 90; n. restless, broken by frightful dreams. 8th and 9th, no medicine; headache continued; slight stitches dart through chest; a disagreeable scraping in throat excites dry cough; cold and heat alternately all d.; prostration, frequent waking at n. 10th and 11th.—Each d. 20 drops; dry short cough both d.; dry heat throughout body. 10th, at n., much thirst, restless, chilliness, and heat till m.; bitter taste all d. in mouth and scraping in throat; cough and great weakness troubled him 13th and 14th. 14th, m. and e., 10 drops; all d. dry heat and weakness, in e. rigor and headache lasting till midnight, quiet sleep, cough abated. 15th and 16th.—Each d. in m., fasting, 20 drops; both d. bitter taste with burning in mouth, oppression of chest as if a great weight lay on it; first n. restless; next d. great weakness and chilliness; in e. pain in vertex till midnight, then quiet sleep. 17th, m. and e., 15 drops; during d. only weak, but in e. oppression of chest, dyspnœa, dry short cough, much thirst with chilliness; at n. pressive pain in vertex, very restless; next d. very weak, head confused. Cough went off on 18th.

b. 12th April.—1 h. after breakfast 40 drops; and 13th 50 drops. The first d. the pepper taste: afternoon, paralytic drawing in legs, heavi-

ness of head and drowsiness; next d. eructation of air, feeling as if stomach were alternately distended and fallen in, the rise and fall could be distinctly felt with the hand; very anxious; heart's beats could be distinctly felt, and were in quick succession, pulse slow, almost intermittent; this lasted 3 m., then he must quickly sit down as he was unable to stand longer; all d. great exhaustion, in e. headache in vertex lasting till midnight. 14th.—50 drops; less exhausted in open air, constant drowsiness in room, he might read, write, talk, no matter, there came on irresistible sleep from which he could not rouse himself without great effort; thoughts distracted; the time since yesterday seemed to be very far distant, and he must think for some seconds before he could remember what he had done; after a meal sudden vertigo, so that he must support himself and sit down; n. restless; all next d. exhaustion, in e. for 2 h. great confusion of head. 16th, m., 60 drops; all d. long headache and painful stitches in l. upper half of thorax, especially on inspiration, dyspnœa, feeling as if a catarrh were commencing, frequent sneezing, with stitches in chest, irresistible drowsiness, even when walking, at n. anxious dreams, on waking great exhaustion. 17th.—60 drops; catarrhal feeling as yesterday, dyspnœa, ameliorated by coughing; frequent stitches in l. side of chest, much sleep by d. and n., distraction, headache in crown occasionally, increased in e., relieved for a short time by cold washing of face and head. Throughout next d. constant disagreeable restlessness, wanted sometimes to sit, sometimes to stand, sometimes walk, does not know what ails him; thoughts distracted, what he wishes to do one moment he forgets the next; n. sleep restless. 19th, m., 40 drops, after 1 h. again 40 drops; taste of pepper in mouth, especially on tip of tongue, then plainly felt palpitation of heart, heat throughout body, feeling of anxiety, relief after drinking water; anxiety soon returns, feels as if some great misfortune would befall him; vertigo, even to make him fall; cough with stitches in chest, pulse full, quick. Afternoon, better, but very weak. E., headache. N. quiet. 20th.—80 drops taken in two doses; burning on tongue, empty eructations all d., distension of stomach, which is sensitive to touch; headache in crown, as from pressure of a heavy weight, only going off in e. of next day; after eating sudden vertigo, must catch hold of something to support himself; periodical stitches through chest, accompanied by dry short cough; exhausted feeling; at n. constant restlessness, alternate cold and heat. Next d., besides headache, catarrhal feeling and oppression of chest, with some cough and exhaustion. In n. between 22nd and 23rd slept well, and had no further symptoms. (*Ibid.*)

11. N. N—, medical student, æt. 23, sanguine temperament, delicate constitution, troubled during past year with palpitation of heart, for which acon. gave speedy relief, since then in good health. From 14th Feb. to 3rd March inclusive took daily, m. and e., from 14th to 16th 10, on 17th 15, thence till 22nd 12, from 22nd to 27th 15, from 28th till m. of 4th March 20 drops. No symptoms except scraping in fauces, pepper-like smarting on lips, gradual injection of palate and tonsils; and 4th March tearing all through forearm, wrist, and fingers of r. side. 5th, m., 24 drops. Tearing in upper arm and upper

third of r. thigh. From 6th to 13th daily, m. and e., on 14th and 15th only m., 24 drops. On 6th scraping in throat, which is injected; e., tearing in r. upper arm about elbow-joint and in thigh about knee-joint; on 7th, afternoon, a sudden tearing in l. knee-joint lasting 10 m. On 8th and 9th occasional violent tearing alternately in both thighs, in r. knee-joint, and r. forearm. Along with scraping in throat on 9th uvula and r. tonsil were much injected. 10th.—On coming into open air 1 h. after taking medicine violent palpitation of heart, that after dinner at 3 p.m. and 8 p.m., one h. after dose, returned and lasted ¼ h. Next day two attacks of palpitation of heart, pulse quicker and stronger. Sleep during whole time sound and dreamless as usual. 12th, afternoon, violent tearing in r. arm about elbow-joint. Both tonsils and uvula very red, scraping in throat. 13th, forenoon, palpitation of heart that lasted ½ h., with feeling of tightness of chest. Between 5 and 6 p.m., tearing in l. shoulder-joint. Next d. at 10 a.m. palpitation of heart, hard stool after 3 d. of constipation. 15th.—Only scraping in throat. 17th, 5 p.m., 24 drops. After 2 h. violent and quick beating of heart for ½ h. 18th and 19th, m., 20 drops. The 1st d. in afternoon, tearing in whole l. forearm. 2nd, e., violent palpitation of heart. 20th, afternoon, palpitation worse than ever with great anxiety and difficulty of breathing. Took at noon 20 drops, when it became less, but lasted slightly all d. and e.; in addition tearing and formication in r. arm. The next 3 d., m., 24 drops. No effect. Therefore, from 23rd to 26th he took daily, in m., 40 drops; from 27th to 8th April daily 50 drops. 23rd.—Tearing in elbow. The next 2 d. no symptoms except some scraping in throat. 26th.—In e. violent tearing for ½ h. 27th.—After ½ h. formication along l. arm. 28th.—From 11 a.m. till 1 p.m. very violent palpitation of heart; transient coldness with momentary shivering, followed by heat and sweat. 29th.—Besides tearing in elbow for 10 m. a sudden, transient, but violent compressive pain in r. upper orbital border. 30th.—No symptoms. 31st.—Same symptoms as 29th, but only late in e.; also pressure on l. eyeball as from a heavy weight. Tearing in orbital border; this ceased following e. 2nd April.—On going out violent palpitation of heart. 3rd, forenoon, pressive tearing pain in l. orbit, like constriction, as if eyeball would be pressed out. This was repeated 5th and 6th. 7th, m., ½ h. after dose violent palpitation of heart lasting ½ h., with great anxiety and dyspnœa, also the pain in r. orbit. After a walk of 1 h. marked exhaustion of extremities, increased on again walking in afternoon. When at rest rigor, lasting from 5 to 10 m., followed by considerable but transient heat and rather profuse perspiration; at same time heaviness of head and a vertiginous swaying and swinging of head. 9th.—At 6.30 a.m. 70 drops. After ¼ h. palpitation of heart and great oppression, feeling of pressure in r. orbit, and heaviness of head; he feels as if tipsy, and quite unable to study. 10th, 7.30 a.m., 50 drops. Soon afterwards palpitation of heart with great oppression; all d. heaviness of head, giddiness; roaring in head and ears, increased by reading; he staggers as if tipsy or as if he had had a violent contusion on head. 11th, m., 50 drops. Tearing in

there came on irresistible sleep from which he cou
without great effort; thoughts distracted; the t
seemed to be very far distant, and he must thin
before he could remember what he had done; a
vertigo, so that he must support himself and sit do
next d. exhaustion, in e. for 2 h. great confusion
60 drops; all d. long headache and painful stitche
thorax, especially on inspiration, dyspnœa, feeling
commencing, frequent sneezing, with stitches i
drowsiness, even when walking, at n. anxious drea
exhaustion. 17th.—60 drops; catarrhal feeling as
ameliorated by coughing; frequent stitches in l.
sleep by d. and n., distraction, headache in crown o
in e., relieved for a short time by cold washin
Throughout next d. constant disagreeable restles
times to sit, sometimes to stand, sometimes walk,
ails him; thoughts distracted, what he wishes to
forgets the next; n. sleep restless. 19th, m., 4
again 40 drops; taste of pepper in mouth, especial
then plainly felt palpitation of heart, heat through
anxiety, relief after drinking water; anxiety soo
some great misfortune would befall him; vertigo,
fall; cough with stitches in chest, pulse full, quick.
but very weak. E., headache. N. quiet. 20th.
two doses; burning on tongue, empty eructations
stomach, which is sensitive to touch; headache
pressure of a heavy weight, only going off in e.
eating sudden vertigo, must catch hold of somet
self; periodical stitches through chest, accompanie
exhausted feeling; at n. constant restlessness,
heat. Next d., besides headache, catarrhal feeli
chest, with some cough and exhaustion. In n. bet
slept well, and had no further symptoms. (*Ibid.*)

r. forearm worse than ever, lasting from 11.30 a.m. till 5 p.m., at same time continued giddiness. At 8.30 p.m. 50 drops. Tearing repeated till midnight. 12th.—100 drops; no symptoms. 13th, at 6.30 a.m., 120 drops. From 10.45 a.m. till 4.30 p.m. constant feeling of tearing in all l. forearm, hand, and fingers. This symptom reappeared next d. at same time and with equal intensity, but was limited to forearm, and lasted only till 3 p.m. At same time quickened heart's beats and difficult breathing. The following d. no symptoms. 16th.—Only the cardiac and respiratory symptoms appeared. 17th, forenoon, from 10 a.m. onwards pressive pain over whole cranial vault, as if equally compressed from all sides, the pain is sometimes concentrated with the greatest intensity in l. orbit. This lasted till 1 p.m., came on next d. at same hour with still greater violence, declined about noon, and went off completely during dinner at 1 p.m., but returned with equal violence about 3 p.m. In forenoon it was accompanied by tearing in forearm, great anxiety, and dyspnœa. 19th, 20th, and 21st.—No symptoms. After irregular intervals of 3, 4, and 5 d. there occurred occasionally during d. some tearing in various parts, chiefly in l. forearm, gradually growing slighter. The palpitation occurred occasionally, and at length went off completely. Even after a month the tearing was occasionally felt. (*Ibid.*)

12. *a.* Dr. Reisinger took from 5th till 15th Jan., daily, 5 drops of tinct. ½ h. before breakfast. On 2nd d. slight formication with warm feeling in l. index and middle finger; at same time painful drawing in r. cervical and nape muscles, which went off during n. 10th.—Slight transient shiver over back; shooting and tension in gastric region for several h., very like flatulent colic after a full meal. 18th.—10 drops, 3 times, ½ h. after breakfast, at noon, and at 4.30 p.m. Woke from afternoon siesta (which always made him warm) with chilly feeling all over body and cold r. upper arm, l. being moderately warm. The chill lasted while walking in open air and in warm room till 7 p.m., when it gave place to transient disagreeable warmth, as in catarrhal fever. From 19th till 27th daily, m. and afternoon, 10 drops. No symptoms except empty eructation after each dose, and twice slight pressing headache in r. temporal region. 28th, 29th, and 31st, m., 20 drops. 28th.—All d., increased feeling of warmth, exhaustion of head, small appetite; e., before going to bed, increased heat, full quick pulse. When sitting still felt beating of carotid and temporal arteries. No desire to go to bed; when he went to bed at 1 a.m. felt need to sleep, but could not sleep; increased disagreeable heat of whole body, especially of lower extremities; sweat on inner surface of thighs, over scrotum, and violent itching there compelling him to scratch till blood came, somewhat allayed by cold washing. In the half-sleep that lasted till m., troubled with confused fantastic dreams. 29th, forenoon, sweating and itching on scrotum; in e. and through n. troublesome heat, n. sleepless with dreams; the following n. less, but still very restless. 31st.—Momentary pain in r. hip, that went off when walking in open air. From 1st till 4th Feb., daily, 40 drops, ½ h. after breakfast. 4th.—Transient slight pressing pain in r. temporal region, a similar transient pain in r. abdominal parietes, as from flatulence, 2

or 3 times during d. This latter came on the next 3 d. in l. side. 7th, e., chilliness followed by slight warm feeling, ending at n. in profuse sweat. 8th, 9th, and 10th.—Daily, 40 drops, return of the periodical pains in abdomen. 11th.—60 drops. All d. very depressed spirits; e., for 5 or 6 h. pain in cervical muscles and shoulder-joint, so that he could not move arm backwards without great pain. Sound sleep at n. 12th, 13th, 14th.—No medicine. 14th.—Noon, slight griping in belly; n., sudden slight prickling in tips of fingers and toes, frequently recurring. 15th.—60 drops. Only astringent taste and hawking of fluid saliva.

b. 18th March.—60 drops. After 1 h. violent pain in l. eyebrow, as if head were split with a wedge, lasting more or less all forenoon; frequent eructation, with taste of medicine; prickling and burning in tongue, as from pepper or much tobacco smoking. These symptoms felt equally when walking in open air, and in the room. Woke from afternoon siesta with slight transient shooting in l. upper part of chest, as from flatulence; e., confusion of head, difficulty of getting to sleep; quiet n. 19th.—80 drops in water. After ½ h. feeling of burning and heat in lung, not affecting breath, felt as if a hot fluid would rise into mouth, at same time constant burning and manifest swelling of tongue, as after pepper or peppermint, with feeling as if cold air passed over it; frequent increased secretion of watery saliva, almost like salivation, lasting 4 h. At same time the wedge-like forcing asunder headache, worse in room than in open air. Very anxious and giddy; slight chilliness over back, with numb feeling on sacrum to lower extremities; when sitting or standing the lower limbs feel as if asleep, or as if adherent to the ground; this went off immediately on walking, but recurred at once on sitting down or standing still; lasted ½ h. Frequent emission of urine as clear as water, though he had drunk nothing but the medicine. At noon felt well; e., slightly increased cutaneous temperature; n. tolerably quiet; next d. no symptoms except those of the mouth. 21st.—All the symptoms of the 19th returned in the same order, only slighter and shorter. 22nd.—100 drops in water. After 1 h. burning pain in tongue, increasing every m., with considerable flow of saliva, for 4 h.; anxious feeling in scrobiculus cordis, with vertigo, especially in warm room; constant chilliness in back with cold extremities, even in warm room, as before a catarrhal fever breaks out, for 1 h.; depression, out of humour, very hard stool, sore feeling in anus. Next 2 d., no medicine, no symptoms. 25th.—120 drops in water. For ½ h. a hot burning from stomach up through œsophagus; the head, tongue, and saliva symptoms, as also the chilliness over back and lower limbs, as before, feet as heavy as lead when sitting and standing; toes of r. foot went to sleep when walking; anxious trembling, like vertigo, boiling and simmering through body as if hands and feet would go to sleep, or as when one is on the point of becoming intoxicated with wine, always accompanied by a disagreeable cold feeling. The 2 next d. prostration, confusion of head, and in e. greatly increased temperature of body, with swollen cutaneous veins. 28th.—140 drops in water, Vertigo for 4 h., burning of tongue. Salivation, burning in stomach, and along œsophagus. Vertigo and stupefaction,

general anxiety as if the blood would come out of all the vessels, accompanied by constant chilliness and cold face even in warm room, better in the air, and when moving; stumbling of legs, and feet as heavy as lead, so that he could scarcely walk. Longs to be better, is cross, everything is disagreeable to him; e., momentary shooting and drawing in sacrum, frequently recurring next d., especially when at rest. 30th.—140 drops. No symptom except slight burning of tongue, confusion of head, dryness of fauces, with slight increase of saliva. 1st April.—200 drops. The usual symptoms of tongue and saliva, somewhat less than on previous d.; heaviness and weariness of limbs, slight chilliness over back, cold feeling of face, which is hot to the touch; quiet sleep at n. The next 3 d., in which he took no medicine, daily headache in afternoon, and rather restless nights. 5th. —160 drops in water. After ½ h. disgusting sweet taste in fauces, sometimes causing hawking of viscid mucus, sometimes swallowing of it; sensation as if viscid mucus were hanging from uvula, causing inclination to vomit for 1 h.; then the usual pepper taste, that spread from root of tongue gradually all over tongue; at same time increased flow of saliva, when the sweet taste went off; dryness of fauces with irritation to cough that can be suppressed. A kind of numb sensation spread from teeth over cheek-bones to external canthus of eye, and then over almost all the body. The brain seemed to be too large and pressed forcibly on the skull; at same time chilliness over back with predominant coldness and paleness of face. All this lasted 4 to 5 h., even during a warm bath. The numb feeling of the extremities when at rest went off by walking. Excessive weakness of limbs; staggering of knees; general laziness so that he must drive to his business; frequent ill-smelling eructation with taste of medicine, which always relieved a tensive feeling in pit of stomach; vertigo as from slight intoxication, with great distraction of thoughts, so that when seeing patients he often became anxious; aggravation in room or when at rest, amelioration in open air and when moving. The next 2 d. transient slight drawing shooting pains in l. chest, l. ear, and later l. knee-joint. 8th.—108 drops, After 1 h. the usual phenomena in mouth, fauces, œsophagus, stomach, teeth, and face. The wedge-like bursting pain in temporal region slighter, and more of a dull stupefying sensation, making thinking almost impossible, and causing a peculiar anxious feeling. During internal chilliness from back over lower limbs, whilst upper limbs are warm, cold sweat occurs; face is icy cold to the touch. The numb feeling of lower limbs, especially of feet and toes, stronger than ever, and even while walking, so that he must often stand still, in order to get rid of this feeling by moving feet backwards and forwards. All this lasted 4 h. Appetite, throat, and other functions unaffected. In e., when at rest in unheated room, sensibly increased warmth, quicker pulse, manifest catarrhal symptoms; legs as heavy as lead, especially on going up stairs; staggering, general laziness. (*Ibid.*)

13. Dr. Rothansl took, 4th Feb., 7 a.m., ½ h. before breakfast, 6 drops of tinct., increased daily by 1 drop, so that by 13th he took 15 drops. From 5th to 12th the symptoms were: Every n. excessive

restlessness, generally slept some h. before midnight, and then restlessly and disturbed by heavy dreams; the remainder of the n. sleepless, but continual very vivid fantasies prevented full consciousness. Great dryness of the body and burning itching, especially on inner sides of thighs and round knees, that did not permit a moment's rest. 5th.—Vertigo on stooping, vision of sparks, mist before eyes. 6th.—Roughness in throat (soon after dose), frequent secretion of mucus from larynx; afternoon, drawing and paralytic stiffness in r. upper arm, for 1 h. 8th.—Heaviness of head, giddiness, tinnitus aurium, especially when yawning, which occurred frequently. 9th, forenoon, for 2 h., irritation to cough in larynx, cough dry. 11th.—Vertigo and tinnitus aurium. 13th.—After midnight wakened by violent rigor; it came in fits every 5 m., went from præcordial region and was lost in extremities. Slept after each attack of rigor, and was disagreeably awoke by each new attack. This lasted 2 h., then burning dry heat, pulse febrile (heard it in head). On awaking in m. was bathed in sweat. 14th and 15th.—Unusual weariness. 16th.—Violent stitches in region of 8th, 9th, and 10th ribs, at first l. then r.; oppression of chest. In e. a very severe burning stitch in l. half of chest. 17th.—The shooting pains lasted all d. in slighter degree, and sometimes extended to loins. 18th.—Tension in l. patella, transient stitches in r. half of chest. 19th.—At 12.45, rigor, lasting 1 h. as on 13th, then excessively profuse sweat that completely soaked the bedclothes, till m.; sleeplessness; in m. fluent coryza; all d. great exhaustion; tension first in l. then in r. patella, that rendered going down stairs difficult; e., tensive pain only in r. patella, which lasted till 22nd. 20th.—Rigor in n., thereafter dry hot skin and sweat, but not so profuse as yesterday, great prostration during day; coryza continues. 21st and 22nd.—Restless sleep; dry cough, especially violent in warm room; heaviness on chest; bruised pain between shoulders; excessive weariness. 23rd.—Dull pain in temples; hoarseness; dry cough; dry feeling in windpipe (afternoon); twice he expectorated thin white mucus mixed with streaks of bright red blood; bruised pain betwixt shoulders. 24th.—Coryza continues; cough with scanty frothy mucous expectoration; tension in r. patella. 27th.—Violent headache, especially in r. half of forehead; coryza continues; cough violent, with peculiar dull tone, very fatiguing to chest, rather dry, rare expectoration of thin white mucus; e., chilliness in warm room; constant irritation to cough. 28th, n. very restless. The frequent cough caused aching and burning pains in course of windpipe down to scrobiculus cordis. In m. often hoarse, and so much plagued by harassing dry cough, especially in warmth, that he felt he must lie down. About 11 a.m., shooting pain in r. upper orbital border, that spread in dendritic form thence upwards over forehead to hairy scalp, sideways to r. temple, and down to cheek, and two or three molars, increased by pressure, and became so violent towards e., when cough became constant, that all other symptoms appeared insignificant, and it could hardly be borne. Complexion very red, face hot, eyes sparkling. Next n. pretty good. 1st March.—The supraorbital region was somewhat swollen in the m.; a dull shooting pain was felt on strong pressure. Dry cough

returned frequently. Felt very much exhausted, and could not occupy himself with reading. 2nd.—The pain over r. eye only felt on pressure; cough violent. Every breath of fresh air did him good. At n. the peculiar rigor that had not occurred since 20th Feb., came on, also the tension in r. patella, that had troubled him at first, became very bad on 3rd March. After this the symptoms gradually went off. (*Ibid.*)

14. *a.* Dr. F. SCHWARZ, æt. 29, sanguine temperament, commenced 3rd Jan. with 3 drops of tinct., increased the dose daily by 1 drop till 8th, then till 14th by 2 drops, on which d. he took 16 drops. On 18th began with 25 drops, increased the dose daily by 3 to 4 drops, so that on 22nd he took 40 drops, and on 24th 24 drops. When taking 20 drops felt warmth in mouth, relieved by drawing in air, as from taking peppermint. This went off after 1 h. After 30 drops, slight burning from lips to fauces; mucous membrane of mouth slightly injected; roughness in throat, especially in posterior nares, compelling frequent hawking, with feeling as if viscid mucus was drawn through choanæ, and a tiresome dryness increased by smoking tobacco. Painful spots on hairy scalp, sensitive to touch and cold air, and especially strong wind, like rheumatism. All went off in 3 h. 6th Feb.—20 drops; from 9th till 12th increased dose daily by 10 drops; left off till 22nd, when he took 50 drops, 24th 70 drops, and 26th 130 drops. The above symptoms occurred in same manner; after 50 drops in greater intensity and lasting longer, especially burning in buccal cavity as from pepper, which after 70 drops lasted till next m. During all the time excessively increased sexual desire. 8th March, 8 a.m., 100 drops. Violent scraping and burning in throat, as from cayenne pepper. After 1 h., coldness over back and extremities, with sensible coldness as if under skin, and slight rigors in short fits till 5 p.m.; at same time flying stitches in back of hand and dorsum of foot, and between scapulæ; in e. feeling of weight under sternum, preventing deep breathing, like a peculiar painful but transient pressure from sternum to spine; occasional flying stitches in the l. pectoralis major and intercostal muscles, also under scalp. 9th.—140 drops, same symptoms. 12th, 10 p.m., 260 drops. Besides above symptoms extraordinary restlessness, constant tossing about in bed and sleeplessness till 3 a.m.; alternate heat and cold, in places goose-skin, which went off when sweat appeared. At same time constant eructations of air, with taste of alcohol; very violent heartburn; frequent yawning and stretching of limbs; pressure, especially on r. side of chest; quickened respiration; pulse full, strong, and quick. When sweat became general, symptoms declined. Next m. felt quite well, except for a pretty severe shooting in fossa navicularis, which was always most marked when urinating. After 8 d. this symptom at length disappeared.

b. 24th.—400 drops. Immediately violent burning from mouth to stomach, with taste of alcohol. This declined gradually, but, together with eructation that appeared later, lasted all d. After 1 h. the constant burning in tongue, as after excessive use of pepper, was particularly observable, increased in intensity for 4 h., and together with the other symptoms gradually declined till e. The soft palate, tonsils, and posterior surface of fauces were slightly reddened, with feeling of

warmth extending from lips, which quickly became dry, to deep into œsophagus. Drawing in air caused agreeable coolness. Slight shivering over lower, then over upper extremities, with goose-skin in these parts, which became more general and stronger as the cold extended. The shivering is felt especially between skin and muscles, increases in intensity, so that rigor comes on, whenever he keeps quiet. On moving briskly, walking quickly in open air, all the symptoms decline, but return immediately with double strength when standing or lying; at same time extraordinary prostration, indifference, distaste to all sorts of work, crossness, and sensitive irritability. Appetite gone, eating does not relieve the troublesome eructation of hot air with taste of alcohol; but soup or meat causes loathing. In afternoon these symptoms attained their height; the rigor was so severe that he must lie down; icy coldness comes on; he is chilly under two blankets. At same time throbbing in temporal arteries, and feeling as if hair stood on end. These spots were sensitive to touch. Slight burning in eyes, twitching and vision of sparks; occasionally roaring in ears, with sensitiveness to any noise. Breath hot, respiration quick, at each deep breath oppression, anxiety and painful stitches betwixt scapulæ, on one side or other of chest, mostly r., but most severe from scapulæ to spine; pulse strong, full, slightly quickened (85, usually 70). With increase of cold very frequent yawning and stretching of limbs every minute, during latter symptom the limbs, during former the breathing seemed too short. Towards 5 p.m. coldness gives place to warmth, occasionally interrupted by slight shivering. During increase of heat, which ended with slight sweat, the sexual desire was much increased. He could only get rid of erections by getting out of bed. All symptoms declined about 7 p.m., except violent shooting in glans penis when urinating, with emission of hot dark urine; this only disappeared on 3rd d. (*Ibid.*)

15. Dr. J. Sterz, æt. 27, sanguine temperament. *a.* 1st February, 10 am., 3 drops of tinct. Afternoon, contused pain in r. testicle; e., weakness of knees; n., many dreams. 3rd.—5 drops; same symptoms of knees and sleep. 4th.—7 drops; same symptoms; after midnight, burning about navel, lasting 1 h.; abdomen tense and distended; great discharge of flatus. 5th.—10 drops; eruption of red pimples on flexor side of thumb, index and middle finger, painful when pressed; e., weakness of knees; n., many dreams, oppression of chest, compelling frequent inspirations. 6th.—15 drops; afternoon, abdomen distended with flatulence and tense; great discharge of flatus; e., weakness of knees, with frequent stitches in l. knee, frequent yawning, scraping in throat, feeling as if something were sticking in fauces, causing frequent swallowing; confusion in forehead; jerking pain in nape, with feeling of stiffness; aching pain in sacrum; very perceptible heart's beats when sitting still and lying; n., many dreams, with oppression of chest and frequent deep inspiration. 7th.—20 drops; after 1 h. redness and heat of face, lasting ½ h.; coryza with flow of thin mucus; feeling as if larynx were compressed from both sides. The e. weakness of knees extends over r. thigh and leg; contused pain in r. testicle; tightness and pressive feeling in chest, especially in

r. thoracic cavity posteriorly and inferiorly (in lower lobe of lung); frequent deep breathing; bruised pain in r. elbow-joint; abdomen tense, and distended by flatulence; heart's beats distinctly felt when sitting still; chilliness between 7 and 8 p.m.; at n. many dreams and oppression of chest. 8th.—No medicine; forenoon, contused pain of l. testicle; afternoon, flatulent sufferings; between 6 and 7 p.m. chilliness; n., tightness of chest, with many dreams; pimples on fingers unaltered. 9th, n. troubled with frightful dreams that remain long in the memory. The pimples went off on 10th. 16th, at 10 a.m., 10 drops; afternoon, troubled with flatulence; dull shooting pain in navicular depression of urethra, lasting 3 h.; n., many dreams. 17th.—15 drops; afternoon, weakness in r. knee and l. elbow-joint; single stitches in abdomen and cardiac region; e., contused pain in r. testicle; n., many dreams and oppression of chest, with frequent deep breathing. 18th.—No medicine; forenoon, hard stool and pressive pain in sacrum, increased by stooping; oppression of chest; afternoon, troubled with flatulence, pain in r. heel, especially on treading; n., many dreams. 19th.—20 drops; after 1 h. scraping in throat, with slightly reddened soft palate; burning on tip of tongue for 1 h.; afternoon, flatulence; sensation as if throat were constricted; prostration, chiefly felt in knees; contused pain in r. testicle; oppression of chest and frequent deep breathing; warm feeling in abdomen. Between 8 and 9 p.m. slight chilliness; n., pressure in chest and many dreams. 20th.—No medicine; roughness of throat that spreads down trachea and excites to frequent coughing; pressure in pit of stomach; a painful furuncle forms on tip of nose; slight oppression of chest; sleep disturbed by many dreams. 21st.—No special symptoms; dreams much at n. The nasal furuncle disappeared on 23rd. 2nd March.—At 10 a.m., 40 drops; after 1 h. burning on tip of tongue and roughness in fauces with red soft palate; noon, frequent yawning and drowsiness; afternoon, flatulence; dry feeling and scraping in fauces, compelling frequent hawking, with expectoration of tenacious saliva; stiffness of nape; stitches in r. temporal muscle; feeling in root of tongue as if it were spasmodically drawn down at both sides; single stitches in legs and arms; aching pain in sacrum; e., weakness of knees and r. shoulder-joint; drowsiness and frequent yawning; contused pain in l. testicle; on lying down, chilliness; soon falls asleep. At midnight general perspiration; many dreams. Next d. in m. prostration as after a fever; slight headache in l. side of crown, aggravated by stooping and moving head, lasting till 9 a.m. 3rd.—60 drops at 10 a.m. After ½ h. burning and scraping in soft palate that gradually spread to hard palate and tip of tongue and lasted two h.; soft palate somewhat reddened; pain in r. calf as after severe cramp all forenoon; contused pain of l. testicle; afternoon, burning on lips, with feeling that they were swollen; sensitiveness of scalp, especially on crown; on touching hair a peculiar painful tickling; e., abdomen distended by flatulence; voluptuous itching on glans penis; n., when falling asleep twice starting in affright; sleep pretty good in spite of many dreams. 4th, 5th, 6th.—No medicine. 4th, after a meal violent pricks in bowels and liver, as with needles, for 10 m.; sleep disturbed by dreams. 7th.—80 drops

in two doses, first half at 10 a.m., second at 4 p.m.; after 1 h. scraping in throat; towards noon oppression of chest with frequent deep breathing; afternoon, pressure in pit of stomach and renal region; pain in calf as after cramp. 5.30 p.m. Several times stitches in both sides of chest, sometimes deep, sometimes superficial, especially in cardiac region, not aggravated by deep breathing; confusion in r. side of forehead; painful feeling in both calves; frequent yawning; feeling of constriction of pharynx; prostration. 10.30 p.m. Peculiar painful feeling in anus, a burning and scraping lasting 10 m.; starting when falling asleep; n., inward heat; many dreams; oppression of chest with frequent sighing; pulse normal; urine darker coloured and scanty. During next d. frequent deep breathing on account of heaviness and tightness of chest; e., burning under sternum for 10 m.; slept well with dreams. After this quite well with exception of dreamful nights.

b. 31st March, 10.30 a.m., 100 drops of 1st dil.; afternoon, feeling of pressure in pit of stomach and r. lumbar region; e., frequent yawning and hot feeling in upper part of body, especially in face, as if sweat were about to break out, which it did not; frontal region confused; n., sleep disturbed by dreams. 1st April, 10.30 a.m., 100 drops of 2nd dil., taking after this daily 1 dil. higher, so that on 5th he took 100 drops of 6th dil. No marked symptoms except dreams at n. 12th, 13th, 14th, 11 a.m., 100 drops of 1st dil. 12th.—After 2 h., roaring in l. ear, recurring four times in afternoon, lasting less than 1 m. 13th.—Many dreams. After rising face hot and red; this went off in open air. 14th.—Afternoon, frequent deep breathing on account of feeling of pressure under sternum; n., many dreams. 15th.—No symptoms. For several nights vivid dreams of a more agreeable character. (*Ibid.*)

16. *a.* Dr. WACHTL began his proving on 7th Feb. by smelling for 5 or 6 m. at a bottle filled with tinct. After ½ h. felt head confused; when standing a long drawn out violent stitch in l. heel, which spread up in direction of tendo Achillis to hough, recurred 10 to 12 times, and at last became so violent that he must sit down, when it went off. The following n. was restless.

b. 12th, forenoon, 8 drops. Confusion of head, with hot feeling; n. restless; woke next m. with same confusion of head, but notwithstanding took 12 drops. Confusion of head as before an outbreak of coryza lasted all d., together with feeling of warmth in cardiac region; four loose stools during d.; n. restless. Next d. head symptoms abated; forenoon, pricking formication on glans penis, and 5 or 6 violent stitches at orifice of urethra; noon, whilst at dinner, great pressure in stomach as from something indigestible; the sensitiveness and warm feeling in stomach lasted till e. 15th.—Recurrence of pricking formication in glans, and also similar sensation at symphysis of sacrum and ilium, changing gradually into a paralytic pressive pain lasting nearly all d. At n. sudden waking as from a frightful dream, with burning pain proceeding from stomach through the whole œsophagus to the mouth, lasting ½ h., and leaving feeling of dryness. 16th, forenoon, dry heat, with anxious pressure in stomach, and sensitiveness of renal region. Urine seemed thicker and hotter, and was passed with slight-

burning in urethra. In bowels a loud gurgling and splashing as after a purgative; n. quiet. All these symptoms lasted on 17th in equal degree. Recurrence of paralytic pressure in sacral region, relieved by moving and bending backwards. In forearm pricks as with fine needles. Afternoon, extraordinary drowsiness and exhaustion; not refreshed by 3 h. sleep. After waking head much confused and dazed; e., nausea and sweet taste in mouth, relieved by hawking up mucus. At 7 p.m. pressure in stomach, alternating with splashing in bowels, followed by urging to stool. Stool insufficient, with no relief to symptoms. Three attacks at short intervals of chilliness, beginning at middle of spine, and spreading to lumbar muscles, and, in spite of warmth of room, feeling as after taking cold, with transient heat on head, followed by fine flying stitches in l. hand and l. shoulder-joint; n., constant starting up out of sleep, with trembling of heart, and hot feeling in pit of stomach; betweenwhiles light slumber, but no quiet sleep. 18th.—Very exhausted; abdomen sensitive to touch, as if peritoneum were slightly inflamed; noon, shooting pressure under sternum, and similar feeling between scapulæ. Many of these symptoms persisted during next 8 d., some only momentary. Thus the flying stitches in shoulder- and elbow-joints were only for instants; more persistent was the confusion of head, the chilly feeling, the pressure in stomach, splashing in bowels, sensation of dry heat in whole body, with occasional chilliness over back. Constant were the pressive pain in lumbar region, burning on urinating, with thick urine, drowsiness with exhaustion, restless n. and variable humour.

c. 5th March.—20 drops. Soon afterwards chilly feeling from crown down back to coccyx. After ¼ h. general agreeable feeling of warmth in skin and sensation of looseness of ligaments of joints, causing unsteady gait, with flying stitches in l. patella and l. shoulder-joint. Burning when urinating recurred, flow more copious, and a kind of anxiety at commencement of micturition. Next m. after breakfast pressure in gastric region, not lasting long; three soft stools with rumbling in bowels, as after a purgative, and sensitiveness in sacral region; n. restless. 8th.—20 drops. Thereupon pressive pain in head, sometimes more felt in occiput, sometimes at root of nose. Headache, sometimes shooting, lasted all next d. Lastly, scraping in throat and constant tickling in larynx when smoking tobacco. Although accustomed to smoke, it always had a deadening effect during the proving. 10th, n., the pain in throat increased, swallowing was difficult; in m. whole pharynx considerably reddened. Bruised pain in sacral region with pain in belly as from flatulence was pretty constant; e., difficulty of swallowing and redness of throat declined; chilliness with marked exhaustion in lower extremities frequent; had to go to bed at 7 p.m. Slept well till midnight, after which had frequently starting out of dreamful sleep. At 5 a.m. great hawking of mucus with nausea, and lastly, twice vomiting of greenish-grey watery fluid. The weariness and exhaustion of limbs felt in bed. 11th.—On awaking heaviness on chest, and soon afterwards violent pricks in rapid succession in left half of chest from without inwards. During d. shooting burning with hot feeling in region of coccyx and in hæmor-

rhoidal vessels, which lasted till next d. 12th.—Stiffness with bruised feeling in l. side of neck to shoulder-joint and part of back, aggravated in bed and when lying, ameliorated by movement and open air. This lasted 13th, 14th, and 15th, but alternated from 14th with similar feeling in lower and upper limbs, and then suddenly sprang back to first place. During whole proving had two or three times a d. sudden congestion to head, with anxiety, whereupon the chilly feeling over back and extremities came on. A constant symptom was fatigue when walking, especially going up stairs, during which he must frequently rest on account of dyspnœa and hot feeling in lungs. Mind and disposition affected; sleepiness, dislike to mental work, crossness, anger about unimportant things, dislike to society and tendency to start were constantly recurring.

d. 3rd April.—30 drops. Immediately hot feeling in head, with chilliness over back; all d. extraordinary exhaustion in whole body. 4th.—40 drops. Pressing pain in forehead and occiput, increasing towards e. The next n. restless. 5th.—Headache relieved, but prostration of whole body, so great in e. that he must go to bed early. Next m. violent stitches in r. half of chest with loss of breath, and during d. repeated tinnitus aurium. 7th.—50 drops. Shooting pressure in l. half of chest, with anxiety and warm feeling in cardiac region, frequently recurring all d.; n. restless, disturbed by frequent starting. These symptoms returned twice the following d., but slighter. Towards e. tearing stitches in r. knee-joint, and contused pain in r. testicle. Next d. nothing but tearing stitches in almost all joints, quickly changing, but very acute. (*Ibid.*)

17. *a.* Dr. WATZKE took 10th January, forenoon, 1 drop of acon. tinct., and continued till the 16th, increasing the daily dose by 1 drop. On 18th, 8 drops; 20th, 10 drops. Made no alteration in diet. 1 drop caused scraping in throat for several m., and a peculiar derangement of the disposition. Could not, even in society, get rid of anxious, fearful thoughts. Had, too, transient pressive pain in patella. After 2 drops, scraping in throat was more marked and lasted longer (all afternoon and e.) and there were repeated stitches in throat and dull pain in vertex. Oppression of chest and frequent stitches in back. After 3 and 4 drops, besides scraping, swollen feeling and stitches darting through throat, oppression of chest, and predominant sadness. After 5, 6, 7 drops, no throat symptoms, but pressure and acute stitches in vertex, pressive pain in patella and tendo Achillis, oppression of chest and feeling of weight in stomach, the latter lasting 1 m., and recurring several times in d. 10 drops caused frequent violent eructation, increased thirst, feeling of weight in stomach with sense of compression in œsophagus (especially in forenoon), dull pain in vertex, extending to temples, increased by stooping, aching and gnawing pain in patella, melancholy disposition. After eating, after wine and coffee, symptoms disappeared.

b. 22nd, forenoon, 15 drops. Soon afterwards prickling burning in palate, throat, and along Eustachian tubes, increasing till noon, declining afternoon. Next n. sleep very restless. 23rd.—Uvula much swollen, and with arch of fauces and posterior part of palate injected in a ramified

manner. Saliva increased, compelling frequent swallowing: pain increased by swallowing. Therewith oppression of chest, dull pain behind sternum, frequent deep sighing, sometimes dry cough. Throat-pain worse when walking in open air, accompanied by troublesome pain compounded of burning, itching, and shooting in both ears, relieved by eating, returning in e. with increased intensity. All these symptoms continued though slighter next d., and were quite gone on 25th.

c. 6th, 7th, 8th, 9th Feb., m., after breakfast, 20 drops. During these days the throat-pain was constant. It began soon after taking dose, was shooting and accompanied by feeling of swelling in throat: lasted all d. It was as if an angular, many-pointed body stuck in throat; uvula swollen, elongated, arch and posterior surface of palate greatly injected and dark red. At same time frequently during the day, for a m. at a time, very troublesome and acute pressive pain at both sides of vertex, forehead, lower jaw, most persistent and severe in r. shoulder and r. upper arm; feeling of exhaustion and heat in chest; frequent sighing, attacks of anxiety; sometimes dry cough and contractive shooting pain in r. side of chest. In open air heaviness and stiffness of limbs, especially lower extremities; difficulty of moving; on treading heavily sensitiveness in lumbar region; occasionally when sitting sudden constrictive pain in region of gall-bladder, taking away breath. Every forenoon, some h. after taking medicine, increase of sexual desire, which went off about noon. After eating, chilly feeling, exhaustion, drowsiness; n., increased heat, frequent tossing about in bed; sleep very broken, full of vivid dreams, distinctly remembered. Frequent transient itching, prickling, burning, scratching here and there in skin. Sometimes repeated going to sleep of r. foot when sitting.

d. 22nd.—15 drops m. fasting, same an h. later. During d. painful drawing here and there, most frequently in different parts of thorax and arms, weariness in arms and thighs, confusion of head, continual but slight pressure in vertical region, scraping and constriction in throat, as if it were narrowed. Chest oppressed, must often sigh. Sometimes stitches darted through chest. Occasionally violent eructation. Sexual desire much increased; e., when passing from obscure room into street, flickering before eyes, lamp-lights trembled and swayed. Difficulty of seeing faces of passers-by; was anxious and giddy, feared to knock up against them. Thought he saw near objects worse, distant objects better than usual. Next n., sleep very restless, body felt hot, tossed about much in bed, and had very vivid remembered dreams. Dreamt he was playing whist, and when awoke remembered all the cards in his hand. 23rd.—Felt pressure and tension in vertical region; took, an h. after breakfast, 30 drops. All yesterday's symptoms except those of eyes recurred, but less severely. 24th.—40 drops, m. Same symptoms. Oppression of chest was more persistent. When coming from open air into warm room, irritation to cough in larynx and dry cough. Feeling of fatigue in thighs and arms more distinct and troublesome. 25th and 26th.—50 drops each m. at 9 a.m. Thorax painful externally in various parts, especially r. side. Breathing sometimes very tight. Must sigh often. Deep breathing often hindered by feeling of compression in central anterior part of chest, or by persistent pinching together, especially in r.

side of chest inferiorly, or by violent stitches deep in hepatic region. Change of temperature excited dry cough, accompanied by sore pain in chest. The feeling of weight in stomach came on more severely and was accompanied by constriction in throat, and attack of nausea. When walking in open air, troubled by acute pressing pain, which alternated for m., or ¼ h., between l. patella, r. tendo Achillis, and back of l. foot. Violent eructation of air, persistent pressive pain in vertex, restless n. with vivid remembered dreams, anxiety, laziness, and prostration. The painful sensations of pinching, aching, pressing, gnawing on different parts of body, lasting a m. or more, were not unlike what is caused by a pretty strong electro-magnetic apparatus. 27th and 28th, each m. 50 drops. Soon afterwards feeling as if throat swelled, and as if a large quantity of mucus was there, which he could not get rid of by constant hawking; flow of frothy saliva into mouth; repeated violent eructation of air; frequent dry cough with sore feeling in chest, and sore pain in larynx; stitches in forehead, back, sides of chest, fingers, back of hand, and lower parts of body, as though he stood on the vibrating stool of an electric machine, and sparks were drawn from him. Pinching together as with blunt forceps in several parts of l. arm, near bend of elbow, for ½ h., frequently recurring during d. Twitching in various muscular parts, especially forearms, as though he had hold of the conductors of an electro-magnetic apparatus, only the pains came and went away more slowly. Fatigue as after a long walk in thighs and forearms; pain of sacral and lumbar regions, tensive, aching, more felt when treading; violent very painful contraction about anus, but not resembling ordinary tenesmus; sometimes stitches darting through anus and urethra. Continual itching and smarting on various portions of skin, compelling scratching; here and there papules the size of millet-seeds appeared, these again filled with yellowish lymph and dried. Afternoon, drowsiness, prostration, feeling of pressure and weight in crown, disinclination to mental work. When walking a peculiar stiffness and heaviness of lower extremities; could not go at his usual quick pace, but sauntered slowly along street. N. throughout very restless, next m. felt heavy pressure in vertical region, head heavy and giddy as after drinking strong wine the previous e. 29th.—80 drops 2 h. after breakfast caused no new symptoms, but those of previous days came with greater intensity, and chest symptoms assumed a more serious aspect. Very frequent dry cough, especially on breathing deeply and in changes of temperature, combined with sore feeling behind sternum. The pressure and oppression on chest increased, especially towards e., accompanied by drawing and stiffness in nape, and painfulness of scapula. Moderate wine drinking relieved chest symptoms, but aggravated those of head. Next n. sleepless. Woke every ¼ h. with confusion of head in vertical region, and dryness of mouth and gullet. Cutaneous temperature somewhat increased; drank much. 1st March. —Took 80 drops, half at 9.30 a.m., other half 3 h. later. Afternoon, violent pressure in vertical region, attack of vertigo, feeling in crown as if hair stood on end, that part was hot externally; chest symptoms as yesterday. Next n. excessively restless. Great exhaustion after the restless n. The next 14 d. same symptoms occurred as when taking

the acon., only less intensely. Sleep during first week very disturbed. The most persistent symptom, besides the restless n., was the tiresome pressive pain in vertical region. Oppression of chest, and cough, generally dry, and only with slight mucous expectoration in m., occurred occasionally, then tiresome and frequent was the drawing, gnawing, shooting pains in limbs, especially forearms. Also the anxious sad humour came sometimes. The symptoms came in greater degree when walking in open air and towards e.; they were removed only for hours by wine and coffee.

e. 6th May, at 9 a.m., after breakfast, took 10 drops of 12x dil., repeated dose 2 h. later. No effects. Same dose at 2 and 7 p.m., also without effect; on the contrary felt unusually well. 9th.—10 drops of 10th dil. did nothing. 10th.—Of 10 drops of 8th dil. in half glass of water, took in course of d. 3 tablespoonfuls, at intervals of 2 to 4 h. Afternoon, repeated slight stitches in throat, head confused. Upper half of eyeballs sensitive, especially when moving eyes, as if they were pressed in from forehead. Stooping rather relieved pain. Later, the feeling of pressure on crown, as if a cap were tightly pressed on head. This lasted till he went to bed at 10.30 p.m. On bending back head pressure in eyeballs and crown changed into a severe but dull pain; n. very restless, with very vivid remembered dreams. Next d. towards e., throat and head symptoms returned; n. again restless. The third d. no symptoms. (*Ibid.*)

18. Helene Weinke, æt. 18, of choleric temperament, robust constitution, always enjoying good health, since her 14th year regularly menstruating, of sedentary habits and costive bowels, took, 17th April, at 9.45 a.m., 10 drs. of 1st dil. of aconite. No symptoms, except appetite for dinner better than usual. 20 drops of same dil. had no effect. 19th.—50 drops of same dil. After ½ h. when walking some shooting in region of spleen. 2 p.m. This shooting came more severely when walking, diminished on standing still, and went off when sitting. At 3.30 p.m. took 72 drops. All afternoon excessive thirst, and from 6.30 till 10 p.m. shooting in l. lower half of chest, that only went off on lying down. 20th, 9 a.m., 10 drops of mother tincture. From 12 noon, shooting in side, alike when walking, standing, or sitting, lasting till 1.30 p.m. At 2.45 p.m., suddenly a moderate pressure in r. lumbar region for a ¼ h. At 3 p.m. 20 drops. Thereupon very good humour; e., heat, sometimes in face, sometimes in œsophagus. 21st, m., aching pain in throat, especially when swallowing, also some stitches in side. 22nd.—On awaking great pain in throat, uvula and soft palate moderately reddened. The stitches in side continue, slighter; much thirst, extraordinary fatigue. 10 a.m. Took (with loathing) 20 drops. The loathing lasted till noon. At n. had a long confused dream, unusual. 23rd, 10.30 a.m., 30 drops. With exception of the throat affection, no symptoms, except in e. a pappy stool, having had no stool for 4 d. 24th.—On waking, pain in throat much increased, redness of the affected parts more intense, with dryness. The sorethroat to-day is more on l. side; at same time hoarse, dry, resonant cough, during which eyes water. Now and then burning of eyes, observed last 2 d. Very restless sleep. 25th.—All d. cough very frequent, at same time symptoms of moderate coryza. 26th.—Sorethroat gone, cough better, but

becomes more violent at 3 p.m., is dry and causes pain in larynx. The last 3 d., during which she took no medicine, a normal stool daily; e., burning alternately in either eye. Excessive thirst. At 10 p.m., shooting, pressive headache when coughing. After ½ h. stitches in side. 27th, m., stitches in side and cough, headache, weariness, and cross humour. The throat commences again to be painful on l. side. 28th. —At 1 p.m increased sorethroat, with frequent swallowing of saliva, that increased so much in e. that she took merc. sol. 3. After 10 p.m., rigor lasting 3 m., followed by general dry heat and increased cough. After midnight restless sleep. 29th.—All better; when walking a tearing in r. knee and thigh, that went off after 1 h. The sorethroat, cough, and stitches in side went off completely in course of 3 d. During the whole proving there appeared very many heat vesicles on forehead, which sometimes were very painful. (*Ibid.*)

19. Dr. Würstl, æt. 39, sanguine temperament, suffered in former years frequently from articular rheumatism, toothache, and on the slightest chill diarrhœa, but has been quite well latterly. 22nd Feb., 8 a.m., 6 drops of tinct. Immediately slight scraping in throat, for 5 m., nothing else. 23rd, 9 a.m., 12 drops. Somewhat more severe but transient scraping in throat. About 11 a.m. suddenly giddy when walking, thereafter slight throbbing in frontal region towards both eyes, for some m. Otherwise well, as he was also the next 2 d., when he took 12 and 15 drops. 6th March, 8.30 a.m., 15 drops. All d. a slight coolness, which about 6 p.m. passed into chilliness, often recurring in course of e.; at same time rumbling in belly, and itching in rectum compelling scratching. Next d. no medicine; symptoms continued. 8th, 9 a.m., 20 drops; forenoon, frequent vertigo; noon, slight chilliness (lasting till e.); afternoon, a soft stool; n., frequent waking, without dreams. The chilly feeling, the loose bowels, and tickling in anus lasted 3 d.; in addition three vesicles came on tip of tongue, which burnt for 4 d. 12th, 8 a.m., 30 drops. After 2 h. great confusion, throbbing and vertigo in head. After midday soup heat in head for ½ h. Afternoon, again chilly; e., both knees are icy cold, with occasional transient stitches in them; n., frequent waking, but he soon goes to sleep again. The cold feeling lasts next d., and at noon has suddenly sweet taste in mouth, and spits out a little bright blood. 16th, 9 a.m., 20 drops. Immediately great scraping and burning as from peppermint in throat and back part of soft palate (for ¼ h.); transient feeling of coryza; forenoon, frequent attacks of vertigo; in both knees slight drawing; noon, emptiness in stomach, with frequent eructations of air; then sudden chilliness, which goes off when eating; afternoon, diminished temperature of skin; frequent micturition, rumbling in belly with great urging to stool. The cold feeling, vertiginous attacks and loose bowels continue the next 2 d. 19th.—30 drops. Mucous membrane of soft palate seems puckered; clear water flows from nose frequently, this lasts till noon; e., chill for ½ h. and frequent micturition. The next 2 d., always about noon, frequent attacks of vertigo; sometimes premonitory symptoms of coryza. 22nd, m., 30 drops, some scraping in palate and throat for ½ h.; forenoon, great confusion of head, transient heat and vertigo; noon, fre-

quent yawning and eructation of air; very good appetite for dinner; afternoon, feeling of exhaustion. The next 16 d. no medicine; almost daily, between 11 and 1 o'clock, attacks of vertigo with confusion of head; drawing in knees, calves, elbows, lasting a few m.; constant sweet taste in mouth, with saliva mixed with streaks of blood; loose bowels with urging to stool; frequent itching in rectum with discharge of white hot mucus; restless n. 10th and 12th April.—40 and 50 drops. Each d., forenoon, vertigo; whilst eating confusion of head. 8 p.m., glowing of cheeks and pressive pain on both temples, with great sensitiveness of eyes, for nearly 1 h. The forenoon vertigo attacks, the sweet taste and coloured saliva, the itching in rectum with discharge of mucus, went off only after 14 to 20 d. Though disposed to rheumatic sufferings, almost no symptoms of this sort appeared, whereas mucous membrane of fauces and of all gastro-enteric tract, especially of rectum, was in a state of congestion with increased secretion. (*Ibid.*)

20. *a.* Dr. Wurmb took, 10th Feb., 6 p.m., 5 drops of tinct.; 11th and 12th, 5 drops; 13th and 14th, 10 drops; 15th, 15 drops; 22nd, 23rd, and 24th, 20 drops; 26th and 27th, 25 drops,—regularly m. and e. On 11th and 27th, burning on upper lip, as from pepper; not on the other days. After 25 drops, dryness in palate and posterior nares, lasting ½ h.; forenoon, on moving neck a drawing pain on l. side of nape and l. scapula; pressive pain in upper part of l. side of chest; the muscles there are sensitive to touch. 28th.—30 drops; no symptoms. March 6th.—Twice, 40 drops. The above sensation on lips and tongue for ½ h.; n., frequent waking with over-wakefulness. Otherwise well. 8th, 9th, and 10th.—45 drops. 17th.—60 drops. 18th.—70 drops, always twice a day, caused no symptoms, or at most burning on lips and tongue. 19th.—No medicine. At 7 p.m., stiff feeling in nape and chilliness, especially in hands and feet, lasting all e. 20th, m. and e., 80 drops; m., after taking medicine, drawing pain in r. hip-joint, which went off when at rest, but instantly recurred when moving and lasted till 2 p.m.; when it went off, a similar pain in r. thigh, lasting till 6 p.m. During d. drawing pains in r. tendo Achillis, l. hip-joint, and lower angle of l. scapula, lasting but a short time. 21st.—Twice, 90 drops; burning like pepper on tongue; e., scraping in throat, going off on hawking up mucus. 22nd.—No medicine; m., on waking, confusion of head lasting ½ h.; at 10 a m. drawing pain in r. thigh, lasting till 1 p.m., so violent when walking that he had to stand still. 7 p.m. Some acute stitches in r. external meatus auditorius. From 23rd to 27th no medicine. All these days, frequent chilliness, stiff feeling in nape; drawing pains here and there, all these lasting but a short time. The most persistent symptom was a feeling as if a warm fluid escaped from anus. This occurred every d. about twelve times. 28th.—No medicine; on waking in m. a drawing on inner side of both thighs, becoming worse during d., and especially troublesome when walking. The thighs were painful to touch, as if sore. The feeling of a warm fluid flowing out of anus frequently occurred. 29th, m. and e., 100 drops. All d. drawing pain on inner side of l. thigh, but not so bad when walking as before.

30th and 31st March, and 1st and 2nd April, m. and e., 100 drops. April 1st, m., after taking dose, burning on tongue and lips, as from pepper, lasting 1 h.; stiffness in nape for 2 h.; all d. feeling of great weariness in feet, especially when at rest. 2nd, 9 a.m., drawing pain in r. side of neck into ear and r. shoulder, lasting all d. and very severe. At 11 a.m., scraping in throat, for ½ h.; afternoon, feeling of warm fluid coming out of anus.

b. From 17th to 22nd, at 9 a.m. and 5 p.m., each time 100 drops of 3rd cent. dil. 20th.—Feeling of warm fluid coming out of anus frequently during d. Afternoon, drawing here and there in joints, lasting a short time; aching in chest, sometimes r., sometimes l. side; immediately after dinner obtuse stitches in brain, in r. side of forehead, then in temporal region, lastly in occiput. 21st and 22nd.—Only occasionally the above sensation in anus. (*Ibid.*)

21. *a.* Prof. von ZLATAROVICH, æt. 37, robust constitution, dark complexion, sanguine choleric temperament, had suffered in childhood and youth frequently from ague. In 29th year had typhus, convalescence lasted 5 years; slight lymphatic and varicose swellings in r. leg alone remain. Began with 5 drops of tinct., increased gradually to 10, 15, 20, 30 drops, always taken in m. before breakfast in a spoonful of water. The first d. no symptoms. 8th d. (10 drops), soon a peculiar headache in crown; felt as if he had a pitch cap on head which compressed it equally from all sides, lasted 2 h. and went off when moving in open air. Next d. slight recurrence of same feeling, more like a formication, never had anything of the sort before. On 1st and 2nd d. 20 drops, soon scraping and contraction in uvula and soft palate, compelling frequent hawking and spitting, with occasional inclination to vomit, lasting some h. Feb. 20th.—30 drops; forenoon, feeling as if a warm fluid like blood exuded from anus, though it was actually dry. (A dry cough for 2 d., probably effect of a chill.) All the time unusual cheerfulness and very active mental power. March 4th.—On waking, 50 drops. Warm feeling in stomach (from the alcohol?); forenoon, when lecturing, sensation as if head were compressed by screws from both sides, forehead quite free. Later, when walking, chilliness; tense distended abdomen; flow of water into mouth, feeling of general malaise. Relieved by drinking wine. Next d., after a similar dose, frequent violent sneezing, nothing more. 13th.—80 drops. Scraping and itching in soft palate, compelling frequent hawking and spitting, like commencing angina tonsillaris, for some h. Sexual desire increased, cheerfulness of disposition, the mental functions performed with unusual strength and endurance. [An itching of the anus, with hæmorrhoidal tenesmus, from which he frequently suffered, has completely disappeared since proving the acon.] 14th.—100 drops. From afternoon till e., chilliness as if between skin and flesh, especially over back and abdomen, felt even while perspiring after quick walking. 15th.—100 drops. In e. merely slight drawing in temporal muscles, for 1 h. From 16th to 20th, daily 120 drops; nothing occurred except on 20th, after taking the drops, scraping in throat with hawking and inclination to vomit for 1 h.; crawling as from ants in head, especially temporal region; on turning head,

tension in cervical muscles, especially sterno-cleido-mastoid, and at its insertion in mastoid process. All through body a peculiar sensation, as when in a vapour bath the steam falls rapidly down on the skin, and drops are felt on it. Frequent discharge of clear fluid from nose (without coryza). From 21st to 25th, daily 150 drops. On 22nd, soon after drops, chilliness coursing along spine, with goose skin, till noon, and formication over the galea aponeurotica; hands and face blue; heat of stove grateful; he soon loses the feeling of stability, felt as if the feet would rise up. Whilst trying to stand on one foot or the other, he slumbers when standing for a moment, which suffices to spread a feeling of comfort over the whole body. Forenoon, feeling on breathing as if the air-passages were uncommonly wide, so that the air can pass with extraordinary facility in great streams out and in at each breath. 23rd.—Only creeping and crawling over whole body. 24th.—Same sensations, immediately after taking drops, accompanied by tiresome rather than severe shivering, here and there, especially in upper arms and legs; contraction of temporal muscles, creeping in scalp; involuntary pressing of lower against upper jaw, with flow of saliva into mouth; noon, after a short walk, vertigo, with commencing staggering. Drawing from temporal muscles to external meatus auditorius with feeling of tension there. Some painful jerks in occiput. 25th.—Only slight reminiscences of yesterday's symptoms. 26th.—More than 150 drops. About 11 a.m., when walking in open air, chilliness all over body and goose skin; gait unsteady, sight rather misty. These symptoms aggravated on coming home and sitting. Head warm and feels small, like that of a child, when supporting the forehead in the open hands. Drawing in whole head, especially in temporal muscles and behind ears. Creeping in the galea aponeurotica; crawling as from ants over back, upper arms, and thighs; tips of fingers and toes as if numb; abdomen distended and tense; disinclination to speak; lower jaw firmly pressed against upper; nose quite dry. Symptoms relieved by soup, and by eructation with taste of medicine. Pulse 72, contracted, hard. Noon, feels well, with frequent erections and greatly increased sexual desire, almost to emission of semen, though coitus had been performed towards morning. Afternoon, while walking in open air after a moderate meal, headache for 1 h. 27th.—170 drops. All forenoon, giddy, especially in open air. Creeping and crawling over whole body; feels the roots of his hair; towards noon, sleepy; head as if pressed together, as if the galea aponeurotica were too tight; transient itching and pressure in hæmorrhoidal vessels. 28th.—180 drops. Exactly the same symptoms as yesterday except the hæmorrhoidal sufferings. Lower jaw drawn against upper; teeth sensitive to air; constant creeping and crawling, especially in r. leg; occasional feeling as if epidermis were separated by a thin layer from skin; retraction of scrotum; e., slight heartburn. 29th.—M., 200 drops. About 11 a.m. heat all over body, anxiety in cardiac region with quicker and stronger heart's beats; flickering before eyes; tension and slight pain in r. calf; sexual desire. About 1.30 chilliness, head rather giddy; thoughts very flighty, even at the slightest cause. 7 p.m., quite well. 30th.—120 drops, at 10 a.m. Sometimes slight

chilliness; e., pressure in hæmorrhoidal vessels; abdomen less tense than yesterday; the skin, especially of hands, seems more smooth and elastic; next m. on waking in bed, loud rumbling and grumbling in bowels; after rising discharge of flatus with relief. From 31st March to 6th April, daily in m., 200 drops. 31st.—After 2 h. chilliness and formication, especially betwixt shoulders and down back, aggravated by movement, like commencement of ague fit, at the same time tips of fingers and toes cold; several violent dry coughs; scalp as if swollen and numb; uncommonly easy breathing; exhilaration alternating with depression. 1st April.—On waking in m., very tiresome heartburn, almost preventing respiration, ameliorated after rising. About 11 a.m. chilliness, especially on back and upper arms; oppression of chest and palpitation of heart, lasting a short time only; towards noon head confused as after too free indulgence in spirituous drinks; heaviness and tension in calves, especially r.; frequent micturition. About 1.30 p.m. r. leg very heavy; painful pressure in hip-joint when walking; in l. leg drawing pains here and there; chilliness between shoulders in warm room; fingers and nails cold and pale, like those of a corpse. 2nd.—Soon nausea and inclination to vomit. Breakfast not relished. Abdomen much distended, some chilliness, very cheerful. Towards noon crawling and creeping in whole cutaneous surface; retraction of scrotum; sexual desire; frequent sighing on account of distinctly felt accumulation of blood in lungs. 3rd.—Soon pressure and tension in soft palate and fauces, as from swelling of those parts, for but a short time. After 1 h. transient stitches in lower part of chest, about false ribs; cough from irritation in larynx with expectoration of gelatinous, formed mucus; then sensitiveness of larynx to inspired air, as if it were deprived of its protective covering, lasting but a short time, at same time feeling of tension in lumbar region, causing him to bend backwards. About 10.30 a.m. coldness in hands and feet; shiver over whole back, whilst head and abdomen are warm. 1 h. later, coldness all over body, face pale and fallen in; tension in r. groin; pressure on root of nose; præcordial anxiety; heart's beats felt. The cold gradually spread all over lower extremities; fingers feel like a corpse. All afternoon cheerfulness and feeling well. 4th.—Immediately inclination to vomit for 10 m., could with difficulty refrain from vomiting. Soon after this had gone off rumbling and shooting contractive pain here and there in bowels. During and after early coffee, frequent violent cough without expectoration, though once a little fluid came into mouth, having a peculiar sweetish salt taste, felt most at root of tongue; thought it was blood, but it was not. After 3 h. feeling of coldness in hairy scalp, which passed gradually into the former contraction of the galea aponeurotica; pressive pain in r. hip; itching in hæmorrhoidal vessels; pressure in occiput; violent cough, during which the anus contracts spasmodically. Forenoon, when walking, often giddy as if intoxicated, when he comes into house the vertigo changes into stupefied feeling. When walking single transient stitches in urethra; occasional pain in hip; when sitting after violent exercise oppression of chest and præcordial anxiety with contracted pulse. 5th.—After 1 h. single transient stitches in urethra, momen-

tary colicky pains, burning pains in r. foot. After 3 h. coldness all over body, especially back; at same time very easy breathing with wide free chest. Afternoon, for several h. drawing pain in border of l. ilium, which sometimes spreads to hip-joint. E., when sitting and writing the pain leaves this part and wanders about body, going into nape at one time, at another into loins, then into bowels, then into groin, then into another joint, always changing with great rapidity, so that it is never longer than at most a few m. in one place. 6th.—After a good sleep rose quite cheerful and feeling quite well. Though he took 200 drops to-day without repugnance, later the idea of the medicine excited loathing and inclination to vomit, and then came on such a disagreeable feeling in stomach, and discomfort through the whole body, that he resolved to cease taking the medicine. The same forenoon when walking, rigor all over body, with paleness of face and fallen-in features; itching and burning in eyes and lids, inviting rubbing; eyes very sensitive to air, not to light, eyeballs felt enlarged as if protruding from orbits and stretching the eyelids. When walking drawing pain in lumbar region, relieved by bending small of back. After 4 h. gnawing pains in r. clavicle for ½ h. E., crawling and biting all over skin, here and there, as from fleas, most persistent in hairy parts, with exception of scalp, compelling him to scratch. 7th.—No medicine; forenoon, when walking (though well clad and in the sun) great coldness all over body, with slight drawing in lumbar region and about ankle. 8th.—Quite well all day. 9th.—On coming from lecture at 11 a.m. he experienced very disagreeable restlessness. He felt extreme hurry; anything that prevented him walking quickly was highly obnoxious, so that he rudely pushed against those who did not get quickly enough out of his way, and ran breathlessly upstairs. Even when he got home this great hurry in all movements continued until 1 p.m., when his usual calm returned. He must then breathe deeply; without exactly sighing, he felt as if he must give his circulation through the lungs an impulse. About 1.30 p.m. he felt weak, chilly, and drowsy; after dinner (2 p.m.), he felt quite well. 11th.—On waking in m., a violent headache on a small spot over the left eye brow. After ½ h. he fell asleep again for a short time, and when he awoke headache was gone; forenoon, quite well. After dinner general discomfort; coolness, especially in hands; prostration and weakness in all limbs; frequent stretching; head warm and confused; wishes to be alone; drawing pain here and there, but only very transient. At 6 p.m., when working, he got so cold that he must go out to warm himself by exercise. Chest oppressed, with sore pain under sternum on breathing deeply.

b. 15th.—Took 10 drops of 2nd (cent.) dil. of acon. No symptoms. 16th.—20 drops. Towards e. great weariness of feet. 17th.—20 drops. M., on rising, acute lancinating stitches in cardiac region, and apparently in pleura costalis, preventing standing up straight and deep inspiration, with irritation to cough. After rubbing skin, and making occasional attempts to breathe deeply, this went off gradually, but corresponding parts of thorax remained sensitive to external pressure. All forenoon well. After dinner, heartburn, with some sore feeling in

stomach. E., transient stitches here and there on ribs, in abdominal integuments and joints; great distension of sensitive abdomen. From 18th he increased the dose, and on 22nd and 23rd took 100 drops of 2nd dil. Scarcely a d. passed that he did not have reminiscences of the former symptoms. Especially constant were drawing pains in whole body, especially in joints of lower extremities, and frequently recurring chilliness. 23rd.—Came out of college with most violent headache. Eyes as if with a veil before them. Pain was chiefly in upper frontal region, was pressing and contractive, head not hot; face puffy and pale; light and noise increased pain. He lay down in bed in a dark room, and the pain gradually went off in ¼ h. He slumbered a short time and awoke free from pain; the whole body cool. 25th.—No medicine. After a good n., at 7 a.m. pressive pain in region of l. second rib, near sternum, confined to a spot the size of the palm, increased by deep inspiration. Drawing in tendinous expansions of lower extremities. The pressive pain recurred several times in forenoon, but soon went off. 26th.—100 drops of 2nd dil. M., after rising, acute pain in r. forearm along flexor tendons of little finger, increased by movement, going off in ½ h. 27th and 28th.—Daily 100 drops. Occasional transient oppression of chest. 29th and 30th.—Daily 200 drops. 30th.—All forenoon pressive contractive headache spread over whole skull, especially l. side and above l. eye, relieved by application of cool hand. (*Ibid.*)

22. J. Schneller proved extr. acon. alcoh. aquos. Phar. Bor. From 4½ grains, only griping and increased warmth in abdomen. From 5 to 9½ grains, first pressive pain in forehead and occiput, then increased heat of whole body, some palpitation of heart and full pulse that did not allow him to remain long at one occupation. After 7½ grains, scraping and burning in œsophagus, anorexia, and yellow fur on tongue. After 9 grains, conjunctiva of both eyes much injected, especially in internal canthus. Doses of 22—24 grains caused severe abdominal heat and gripings, headache and dryness of fauces, slight stitches in lateral parts of chest, and especially in cardiac region and l. hypochondrium. After 24½ grains, a very violent drawing pain, increased by pressure, in dorsal and lumbar region, along sacrolumbalis and longissimus dorsi on both sides of spine, so that every movement of trunk was difficult; this went off in 5 h., and the same pain came in recti abdominis muscles, which were stretched as hard as a board. After 8 h. only tension of abdomen. Three days later took 26½ grains; this caused wandering stitches in l. hypochondrium, back, and head, tension in lumbar region lasting three days, increased heat and redness of face. Great distraction, weakened memory with exalted mental tension; spirits cheerful, sleep quiet. (*Wiener Zeitsch.*, 11th March, 1846.)

23. Drs. Flechner, Frankel and Schneller report as results of their joint experiments, in which they commenced with gr. ½ of extr., and increased dose by gr. ½ daily:—After ½ to 5 grains, frequent eructation, diminished appetite, scanty stool; later dull pain in head, especially in frontal region, lasting some h. After 5½ to 10 grains, pressure in gastric region, distension of abdomen, slight griping round

navel, loathing, white furred tongue, diminished appetite, dryness and scraping feeling in œsophagus, heaviness of head, especially in frontal region, prostration of limbs, increased heat of body, mental restlessness and disturbed sleep, quickened pulse and palpitation of heart. After 20 to 26 grains, pain in abdomen, great loathing, great development of flatulence and rumbling in bowels, the frontal pain increased and lasting longer, sleep restless, disturbed by dreams, transient stitches in cardiac region. In one prover there occurred swelling of tonsils and scanty stools only. (*Ibid.*, iv, May, 1847, p. 106.)

24. *a.* Dr. JABLONSKI, æt. 26, on June 5th, 1869, took at 2 and 3 p.m., 3 drops, at 5, 6 drops of tinct. Pulse at 2 p.m. 68, temp. 36° (cent.). Temperature rose until at 6.30 it stood at 36·8°; pulse rather fell till after dinner at 7, when it rose to 80. At 4, 6.30, and 9.30 felt some pain in joints, especially shoulders; at 5.30 head was dull, with weight in forehead and orbits; at 5.45 pupils were dilated; at 6.30 headache, lasting over an h., redness of face, and neuralgic pains in r. temple; at 9.30 itching of face, and shattered feeling in limbs.

b. 8th, at 2.45 and at 4.45 p.m., took 6 drops. Temp. each time fell from 36·2° to 36°; pulse from 70 to 64 at first, then to 55. At 3.30 frontal headache set in, and lasted till he drove out at 5.30; at different times pains were experienced in ears, orbit, knees, and r. shoulder.

c. 30th, took 6 drops at noon, 2, and 3 p.m. Was suffering at time from headache and heartburn, and earlier symptoms belong to subsidence of these; but at 4.30 we note, pulse fallen from 80 to 55, breathing slower, some constriction in pharynx. There was also pruritus of legs, which, with occasional pains in joints and r. ear, lasted 1 h. longer.

d. July 3rd, took 6 drops at 10.30 a.m. and 3 p.m. Effects obscured by those of indigestion after *déjeûner*, but, so far as truly medicinal, were those of 30th June, the pruritus being general.

e. 10th, took 6 drops at 8 a.m. and 12 at 4.30 p.m. After first dose, nothing; after second, pulse rose from 70 to 80 in 30 m., during next 2 h. falling to 60; temp. hardly affected; pruritus and pains as before; at 5, flushes of heat in face, with warm sweat there and in back.

f. Same rise in pulse took place in afternoon on 5th, when only 6 drops at 8 a.m. were taken, and on 6th, with no medicine, which makes of dubious value its occurrence on 10th. Temp. rose with it to 36·6°—37°. No other symptoms noted.

g. 11th, at 10.30 a.m., 12 drops. In 15 m. pulse fell from 60 to 50, whence it began to rise in 45 m. more. Some tension in orbits, heat and aching in head, and pruritus on face and back, coincided.

h. 20th, pulse after *déjeûner* being 90, and temp. 36·8°, took 18 drops. Both fell; pruritus, pains and tension in orbits came on; respiration felt embarrassed, and working was difficult. (*Bull. de la Soc. Méd. Hom. de France*, xiv, 259.)

25. I have made a certain number of experiments on myself (æt. 50), but pre-occupation has hindered me from making detailed records. I confine myself to stating the general results.

On three occasions, temp. rose $\frac{1}{10}$ or $\frac{2}{10}$; on one it fell $\frac{8}{10}$, though but 7 drops were taken. The principal symptoms were—heartburn, eructations; burning on tongue and throat, as from pepper; heat in head, sometimes in flushes; heaviness of head, dazzling, giddiness, pain at occiput; mixture of dulness and excitement; burning pain in larynx, with choking; coughing and expectoration of viscid mucus; paralytic tinglings in l. hand, 15 m. later same sensation in ulnar region of r. hand; loss of equilibrium; pain in r. thumb-joint. (JOUSSET, in *Ibid.*)

26. *a.* HEINRICH took 0·1 gramme of extr. of whole plant of A. anthora. Pulse fell several beats within first 2 h.; sensation of warmth in stomach; frequent eructations; cool and dry skin; marked increase of saliva. Extr. from root produced similar symptoms, with addition of slight crawling in face and extremities; confusion of head; pressive ache from time to time along course of longitudinal sinus and in r. temporal region; slightly dilated pupil; decided sleepiness, which caused deep sleep whole n. through. Next d. entirely well. (*Journ. f. Pharm., Tox. u. Ther.*, i.)*

b. Took 0·1 gramme of extr. of root of A. cammarum. Pulse at first quicker. After 20 m. eructation, scraping in throat, heaviness and confusion of head, pupils dilated, vision dim. After 40 m. formication at first on tongue and lips, then on face, spreading all over body. Along with formication, itching in skin, sometimes distortion of features; skin dry. After 1 h. head- and face-ache: former increased by bending body forwards, later accompanied by tinnitus aurium and vertigo; pulse slower (fell from 62 to 51 in two hours), and so small, weak, and intermitting it could scarcely be counted. Breathing oppressed, with feeling as if thorax were constricted, saliva increased. On walking great weariness, and on continuing to walk pain in elbows, knees, and hip joints, this pain was relieved by pressure, but not quite removed. After 4 h. headache and faceache became very violent, spreading all over body; stool was passed; formication increased; there was extreme restlessness, so that he walked about his room almost all night like a mad person. Skin became dry and cold, respiration oppressed but quicker, pulse very slow, 40. Very violent eructation, inclination to vomit, spasmodic contraction of stomach and contractions of abdominal muscles; no vomiting. On walking about vertigo, roaring in ears, great sensitiveness to light. When formication went off epidermis scaled off on face. Towards m. he lay down again on account of great exhaustion, and soon fell asleep; when he woke he was very warm and perspiring. Several times after taking extr., but especially now, he experienced erections and pollutions without voluptuous dreams. Next morning he was quite well, but on standing was much exhausted, and the pains in joints returned. In another proving, on his lower extremities there rose small papules and vesicles

* "The root of A. anthora has, when chewed, no power of exciting numbness or tingling. I gave ℥ss of its tincture to a man without any effect whatever. On another occasion, ℥j was administered to the same individual, who, in the course of 1 h., experienced genial warmth, followed by sweating. No other symptom presented itself." (FLEMING, *On Aconite*, p. 86.)

filled with serous fluid, very painful. Memory was weakened; sense of touch diminished, so that he could not distinguish small objects by the touch; voice hoarse and rough. (*Prager Vierteljahrsch.*, ii, 1854.)

27. *a.* H. Dworzack took 0·1 gramme of extract of root of acon. neomontanum. Felt peculiar sharp taste, followed by violent shooting pain from lips to stomach. Immediately violent eructation with rumbling in bowels, head and face very warm, pulse quick, lingual and buccal mucous membrane red, studded with small whitish-yellow vesicles, surrounded by bright red areola; salivation came on; eructation more severe; loathing; inclination to vomit; pulse slower; vomiting. On taking extract in a wafer so that it did not come in contact with mucous membrane of mouth there came on rumbling in bowels and eructation; head became confused; a tensive drawing sensation in course of trigeminus, which gave place to a shooting wandering pain, at first often interrupted, but afterwards continued. Pulse begins to sink, becomes irregular, small, and weak; confusion of head increases; prostration, exhaustion, drowsiness, and dull pain within skull. Pupils, at first very mobile, became persistently dilated; vision dim, and he is not able to look at a highly-illuminated object without winking; near and distant objects seem to swim. About 40 m. afterwards a peculiar formicating sensation on tongue as after taking peppermint. This spreads over lips, back parts of mouth, fauces, goes into tips of fingers and toes and into face, and thence spreads all over body. Increased secretion of saliva; skin becomes cold, harsh, dry. The formication always increased; excited sensation of distortion of features and extremities and constriction of body. Extreme restlessness; it seems as it were a tickling which impels him to constant movement; it is better in equable temperature, but is increased on coming from cold into heat and *vice versâ*. The headache and confusion of head gradually diminished 2 h. after taking dose, but then came on uncommon exhaustion and weariness, oppression and anxiety; he must often yawn; respiration became more difficult and slow, with feeling as if throat and chest were constricted; pulse becomes always more irregular, and sinks to half the normal rate, often intermits, and is sometimes dicrotic. The exhaustion became so great that he could not stand, but is obliged to remain lying; anxiety increased, with apathy, indifference to all the world; pulse and heart's beats are sometimes indiscernible for several seconds; respiration a gasping for air; skin always dry and icy cold; taste and sensibility diminished; on the parts where the formication had ceased occurs a furry feeling as in a finger tightly tied with a thread; subsultus tendinum; involuntary stretching out of limbs. At same time constant nausea; loathing; inclination to vomit, and, at length (after 2 h.), repeated vomiting, with relief; pulse regular; respiration more frequent and regular; anxiety and oppression diminish; body becomes warmer. Formication goes off quite; instead there is a kind of insensibility of skin, furry feeling. Head not so painful and confused; rather dazed and empty, as in drunken somnolence; exhaustion continues; on rising up, vertigo; flickering before eyes, roaring in ears, head- and face-ache, nausea, and such muscular weakness that he must lie down, else he

would fall. Night passed without sleep in this state; some slumber for 2 h. about 4 a.m. Next day he went about from m. till n. half asleep. Memory and attention quite deranged; pupils dilated; pulse sometimes quicker, sometimes slower; after mental or bodily exertion confusion of head, headache and faceache; tongue furred in morning; taste flat; skin of whole body cold and dry; urine much increased. (*Ibid.*)

b. Took ·01 gramme of extr. of A. ferox. Caused immediately violent burning in mouth and pharynx,* with warmth in stomach: in 5 m. salivation ensued, rumbling in bowels, pulse was found slowed by 11 beats; he drank much water to relieve burning. In 40 m. there was formication on upper surface of tongue, gradually involving whole mouth, which, with cheeks, felt furry. In 80 m. there was confusion of head; troublesome formication, mostly over face; frequent eructations; general sick feeling at times, nausea and inclination to vomit; weakness and trembling of extremities; walking difficult, uncertain, fatiguing; general sick feeling; and sense of coldness. He was so tired and cold, objectively as well as subjectively, that he had to go to bed and be covered up warm.

In 2 h. pulse small, weak, 60; formication spread over whole body, but affected very slightly, or not at all, those parts that had been cold; worse by change of temperature and motion. From 7 to 7.30 p.m. this annoying sensation, having changed from one nerve to another, reached its greatest severity; it caused a painful unrest, so that he could not possibly lie more than a few m. quietly, and constantly changed his position. The body was now, especially in extremities, icy cold; the skin dry and rustling; he was wrapped in his gown and doubled coverings, with three feather beds, and the room was kept very hot, without effect. Desiring warmth, he tried to reach stove, but there arose vertigo, flickering, trembling of limbs, inclination to vomit, and he had to lie down again. Dyspnœa now (4 h.) set in with great weakness and anxiety, increasing to such a degree that he was obliged to half sit up to breathe. Therewith feeling of constriction in throat, and calor mordax on forehead, chest, and hands, with sensation as if numerous glowing hot wires were stuck into him, also constant gurgling in bowels. Weakness, dyspnœa, restlessness, with anxiety, increased, with intervals of relief, during which he made merry over his condition; but when distress returned it seemed intolerable; he feared he would suffocate from paralysis of respiratory muscles. At this time (6 h.) his mind was very active, sequence of ideas rapid, he talked constantly; pupils were dilated, sluggish to light; tongue almost insensible, it felt like a piece of leather in mouth; respiration was accelerated; pulse weak and small; sensation as though benumbed; on touching objects it seemed as though he had gloves on, no pain on pinching cheek. In order to promote perspiration, he flexed and extended arms as rapidly as possible; after a m., copious sweat; then felt so weak he sank down exhausted, with palpitation. Slept ¾ h.; on waking, violent burning in mouth

* This was in spite of extract being enclosed in a capsule. (SCHROFF, *Zeit. des Allg. Apoth. Ver.*, iii, 173.)

and throat, warmth in stomach, dull sensation in head; weak, weary, relaxed. All this time (since 40 m.) there had been frequent (15 to 30 m.) and copious urination: this continued, so that in 12 h. more than 5 quarts had been passed, at first straw-yellow, but after 8 h. dark. Had intervals of sleep only during n. On 2nd d. rose at 6.30 a.m., with vertigo; tongue covered with a thick, yellowish-white fur, taste flat and pasty, very little appetite: after breakfast, nausea, pressure in stomach, with pain; two half-watery, dark, not copious stools. Pulse was 70, small and weak; gait tottering, step regular but powerless, comprehension confused, was incapable of any mental work, even the simplest addition. During day lassitude and weariness suddenly attacked him, and temperature was objectively and subjectively lowered, so that he lay 1½ h. by hot stove. Touch all this d. and the two next blunted, as through gloves, and he seemed to walk on woollen carpets. On 3rd d. he had transient nausea; remarkable weakness in lower extremities, especially r.; violent drawing pain in region of stomach and in sacrum, which soon spread over whole abdomen; on pressure at epigastric region pain is increased. This pain recurred on 4th d. also, and from now till 8th d. there was pressure in stomach after eating, and internal dull aching was induced by compressing abdomen. On 4th d., without cause had sleepless n., and on 5th felt very prostrate in consequence. (*Journ. f. Pharm., Tox. u. Ther.*, i.)

28. *a. First degree of operation.*—In the course of 20 m. or ½ h. after the exhibition of 5 min. of the tincture, a feeling of warmth in the stomach is usually experienced, which is occasionally accompanied by slight nausea or oppression of the breathing. After the lapse of 30 or 40 m., this sense of warmth is diffused throughout the body, and, in a few m. more, is attended by numbness, tingling, and a sense of distention of the lips and tongue. There is also tingling at the tips of the fingers, and a peculiar sensation is felt at the roots of the teeth. The feeling of warmth soon disappears, but the numbness and tingling of the lips and fingers continue for a period varying from 1 to 3 h. Slight muscular weakness is generally experienced, with indisposition for exertion, either mental or corporeal. In about ½ h. more, the pulse is found to be diminished in strength; and in another h. both the pulse and the respiration have become less frequent. Thus, a pulse which, in the normal state, beats 72 in the m., will, by that time, have fallen to about 64, and the respirations, supposing them to have been 18, to 15 or 16.

b. Second degree of operation.—Should a dose of 10 min. be given at first, or the first dose of 5 min. be succeeded in 2 h. by another of equal amount, these symptoms supervene more rapidly, and with greater severity. The tingling extends along the arms, and the sensibility of the surface is more or less impaired. In 1½ h. the pulse will probably have fallen to about 56, and become smaller and weaker than before, still maintaining, however, perfect regularity. The respirations will have diminished to about 13, presenting, at the same time, a slow labouring character. Great muscular debility is now experienced; and giddiness with confusion of sight comes on when the erect posture is

assumed. The individual sinks into a lethargic condition, evinces great disinclination to be disturbed, although he rarely falls asleep, and complains much of chilliness, especially in the extremities, which are cold to the touch. These phenomena continue in their full intensity from 3 to 5 h., when they gradually disappear, a sensation of languor, which lasts for several h. more, alone remaining.

c. Third degree of operation.—On the administration of 5 min. more, 2 h. subsequent to the last dose, the sense of warmth, and the numbness and tingling, again spread rapidly over the body. The sensibility of the surface is still further diminished; lancinating pains in the joints are occasionally complained of; the headache, vertigo, and dimness of vision are aggravated; the countenance grows pale and anxious; the muscular feebleness increases; the voice becomes weak, and the individual is frequently impressed with the dread of approaching dissolution. Occasionally the pulse is reduced still further in strength and frequency, perhaps falling to 40, or even 36, but still maintaining its regularity. More frequently, however, it rises to 70 or 80, and becomes small, weak, and probably more or less irregular. The respiratory movements are also irregular, being either short and hurried, or deep and sighing. The surface is moist, and still further reduced in temperature. Sickness may now come on; and, if formerly present, is much aggravated, and probably attended by vomiting. These symptoms do not entirely subside for one or two days.

d. Fourth degree of operation.—If the administration be carried further, the symptoms assume a more alarming character. The countenance becomes pale and sunken; froth issues from the mouth, and the prostration increases. Two patients thus affected stated, that they felt as if dying from excessive loss of blood. Consciousness usually remains; or there may be slight wandering delirium, as occurs also after profuse hæmorrhage. The voice is whispering, or is altogether lost. The pulse becomes still smaller, weaker, and more irregular, and the breathing more imperfect. The surface is colder than before, and is covered with a clammy sweat.

e. The sense of swelling or distension, already noticed as being felt in lips and tongue, often extends over face and to different parts of body.

f. Some patients complain of a feeling of weight, as if a heavy load were resting on the abdomen, and bearing them down to the bed.

g. If the administration of the drug has been continued for a week or more, several d. elapse before the heart recovers itself; shortly after which event, I have generally observed that the pulse becomes somewhat quicker and fuller than natural; in short, a slight degree of reaction is established. In one instance, this state was indicated not only by elevation of pulse, but by slight headache, and heat and dryness of skin.

h. In 10 out of 43 cases in which I have watched its action it produced a decided sudorific effect. All of these belonged to the non-inflammatory class of diseases, or were healthy individuals. Diaphoresis rarely occurs until the circulation has been depressed to a considerable extent.

i. I have not met with any convincing evidence that A. is a

cumulative remedy. In two cases, however, symptoms presented themselves which induce me to suspect that it is so. The individuals were affected with general tremors, severe pain in head and eyeballs, constant lachrymation, intense photophobia, heat of skin, quick pulse, and great restlessness,—symptoms which, while very different from those ordinarily produced by A., still were distinctly attributable to its continued use. In the cases referred to, the medicine being discontinued, the symptoms, which were by no means alarming, disappeared in a day or two. (FLEMING, *On Aconite*, 1843.)

29. A healthy and robust girl, æt. 19, confined to bed by sprain of ankle, took 5 min. of tincture thrice daily for 3 d.; pulse became a little slower, weaker, and slightly irregular, and she sweated copiously after each later dose. For 8 d. took 7½ min. daily; pulse 60—68, small and weak; no sweating now. The following symptoms have been experienced from the medicine (beginning ½ h. after a dose, and continuing 2 or 3 h.):—General warmth; numbness and prickling; crampy pains in muscles; dazzling and dimness of vision; sickness, rarely vomiting; loss of power over extremities; great lassitude; and impaired sensibility of surface. Numbness and tingling are first felt in sprained ankle, where they are accompanied by slight pain. 10 min. were then taken for 2 d., and, after an interval of 5 d. without medicine, from 5 to 10 min. thrice daily for 3 d. more. On 3rd d., at 11 p.m., after recovering from effects of 10 min. taken at 8 a.m., she was seized with general trembling, violent headache, pain of eyeballs, constant lachrymation, and intense photophobia; the skin was hot and dry. She spent a very restless n., and next m. symptoms still continued, with somewhat diminished intensity. Vascularity of conjunctiva was not increased. There was thirst and anorexia; tongue moist, slightly furred; pulse 78, weak, and slightly irregular. Symptoms did not completely disappear till next d. Six d. later resumed drug, taking 5 doses of 3—7½ min. in d. Next d., at 6 p.m., great general debility; says she feels as if recovering from fever; complains of thirst and headache; temperature of skin slightly increased. Still some thirst and headache on the morrow. (*Ibid.*, p. 145.)

30. Dr. H. NANKIVELL took A. in doses of from 1 drop to 30 of mother tincture. His temperature rose to 100°, but no higher; and after giving up the drug the feverish effect seemed to pass away after one or two copious night perspirations. (*Monthl. Hom. Rev.*, xvii, 647.)

31. Dr. NICHOLSON made a number of trials on himself with small material doses of A. He could trace nothing beyond physiological oscillations of the pulse. The changes manifested by the sphygmograph were constant after ϕ, similar but less marked after 1x, absent after 1. They were—a more vertical primary rise, then a quick and slight descent and rise again, forming a double curve instead of the single downward curve; and remainder of line is unaltered. The pulse hence becomes softer, with a fulness yielding to the finger, and shows a tendency to dicrotism. There is a more sudden expansion of the artery, but a diminution or unevenness of arterial tension. The changes present, viz.: the rapid distension and alteration of systolic curve, show a tendency to the pulse of pyrexia, not the hard pulse

characteristic of the rigor, but rather that of reaction when the patient's condition improves. (*Ibid.*, xx, 762.)

32. Dr. DESCHERE touched tongue with stopper of bottle of tinct. After 5 m. feeling of smarting coolness of soft palate, soon extending to pharynx, as if peppermint were placed there. This remained all e., and could not be removed by gargling or washing out mouth. Restless at n., tossing about in bed; drawing pain and soreness in l. shoulder and arm (on which he found himself lying each time he woke). At 7 a.m. gurgling in bowels, followed by an urgent, gushing stool, with great tenesmus. Six more followed during d., of yellow water mixed with white foam, preceded by gurgling, but without pain. Chilly feeling, with white cold hands, towards e. Very drowsy and sleepy all next d., no stool. On 4th d. stitches in splenic region, worse on pressure. or deep inspiration; in e. stool of natural consistence, but of white-yellow colour. (ALLEN, *Encyclopædia*, vol. x, *sub voce.*)

33. SIEGEL chewed some of the root of acon. at 4 p.m.; soon burning and tingling in tongue and palate. At 6 p.m., horripilation all over body, and vertigo; at supper felt inclination to vomit. Then horripilation frequent, præcordial anxiety, vertigo, prostration, tenesmus-like urging to stool and urine. Took an emetic of ipec., vomited contents of stomach, confusion of head, slight distortions of limbs and eyes, lipothymia; skin dry first n., sleeplessness; next d. præcordial anxiety, distension of abdomen and prostration. (*Nov. act. phys. med.*, t. vi, p. 129.)

34. A young man took from 10th to 16th April ext. acon., beginning with ½ a grain and increasing to 3¼ grains, in all 13 grains. The urine passed by d. and n. was analysed, and it was found that while taking the acon. its watery constituent was not increased, but its salts were considerably diminished. (DE SOIST, *Diss. de Aconito*, Berol., 1854.)

35. STOERCK took on his tongue a little of the powdered stalks and leaves of acon. He felt a long-continued burning on the tongue, and momentary stitches through the tongue, with flow of saliva. On another occasion he took some extract of acon. on his tongue, which caused slight prickling on the tongue. ⅓ of a grain of this extract swallowed caused general transpiration and actual sweat on the extremities and whole body. (*Libellus de Stram.*, *Hyos.*, *Acon.*, &c., Vienna, 1762, p. 69.)

36. Dr. POTTER took 3 drops of acon. 3 every 5 m. for 1¼ h. After the first dose became fidgety and nervous; then came great and causeless apprehension on account of his wife, who was out on a visit; headache, vertigo, and great sensitiveness to odours supervened. Became so nervous and anxious that he could not work, a voice outside his window caused him to start, and he then fell back faint, with dimness of vision. Could not sleep. (*Hahn. Monthly*, Sept., 1880, p. 532.)

37. Applied a piece of the root to the tip of the tongue. Though I did not swallow it, I had a great flow of saliva, and soon felt as if the skull were tightly constricted externally with a band. Some domestic affairs occurred, I did some calculations, wandered about the house, and did everything hurriedly. Then there occurred (what had never

before taken place) that I felt as though I did not understand, know, or imagine anything in my head, as usual, but to my astonishment I felt plainly, clearly, and constantly as if all these operations took place in the præcordia and round about the mouth of the stomach, and I noticed quite distinctly that, whatever I thought, the head had nothing to do with it, that all the functions of the mind were in the præcordia and not in the head. This lasted a considerable time, and though I had been accustomed to have ecstasies, this was not like them. After about two hours had two slight attacks of vertigo, and then the thinking faculty occurred in the usual way. I tried to bring on the same state by taking acon. again, but it did not recur. (VAN HELMONT, *Demens Idea*, 1652.)

38. Dr. S. THOMPSON took ʒiv of 3rd potency run up in distilled water. In 5 m. felt tingling in fingers, with feeling as though temperature of body was falling. This continued to a sense of coldness, with dry, parchment-like skin. Then a chilliness, with occasional nervous uneasiness and anxiety, which continued 1 h. 3 m. Then alternate chills and flushes of heat almost constantly breaking into each other, lasting 35 m. (tingling and nervousness continue). Then a dry heat set in, with a peculiar tenderness of the flesh to the touch, and nervous anxiety. In 13 m. from inception of this stage, a slight headache came on, with seething in ears. At end of 57 m. this last stage closed, with slight vomiting and sweat. After first 5 m., tingling, nervousness and dry skin existed throughout. (*Publ. of Mass. Hom. Soc.*, iv, 638.)

39. *Single-dose provings of Acon. nap.*—*a.* 8 a.m. Health normal, pulse 65. Took 10 gtt. 1_x in ½ oz. water. 8.3. Sharp pains in l. knee, afterwards in l. ulnar nerve. 8.5. Sudden nausea, and sinking at stomach, soon passed off, followed by increased saliva. 8.10. Shooting pains in r. foot, feeling of lump in stomach. 8.12. Eyes watery, nose stuffy. 8.15. Oppression of chest, slight cough when exercising. 8.20. Neuralgic pains in head, afterwards in lower extremities. 8.23. Numbness of l. hand, with itching. 8.30. Much mucus in throat, itching of scalp. 8 45. Considerable thirst, epigastric region tender to touch, oppression of lungs after drinking, pulse normal. 9.10. Neuralgic pains in legs, occasional slight cough. 9.25. Effort of thinking causes sharp pains in head. 9.30. Similar pains in stomach and bowels, followed by discharge of flatus. 9 40. Perspiration on abdominal walls, after usual stool; urine was scant. 10.30. Neuralgic headache with fulness as if I had taken cold; back feels lame and stiff. 11. Called to stool again, scant, with tenesmus; urine scant. 12. No desire for lunch, thirst continues. Pulse normal. 2. Urgent stool, copious and watery; drawing pain in testes; backache afterwards, feel very uneasy. Pulse 72. 2.15. Chilliness in open air, thirst, coryza. Pulse 84. 4. Heat, thirst, and uneasiness, with pains in abdomen. 4.30. Urgent stool, copious and watery, with colic. Pulse 90. 5. Perspiration on forehead, afterward becomes general. 7. After eating, complete relief of all symptoms. Before eating, pulse 72.

b. J. S. S—, health normal, pulse 72, regular, soft and full. At 11 a.m. took 10 gtt. 1_x, in ½ oz. water. 11.5. Slight perspiration on

l. wrist, pulse weak, 65; followed by slight pain in r. forearm as if in bone, with ache in wrist; perspiration on upper lip. 11.15. Fulness and oppression of stomach, with slight drawing in l. cervical region, empty eructations, pulse 67. 11.20. Perspiration around waist and lower extremities; increased saliva. 11.25. Pulse 70, weak; ache over l. eye. 11.35. Pulse 62; empty eructations; slight obstruction of nose, r. nostril; desire to sneeze but could not. 11.45. Oppression of stomach continues, fulness of frontal sinuses; desire to gape and stretch; occasional eructations; pulse 64. 12. Eyes watery; frontal headache; offensive taste in mouth. 12.20. Sharp pain through r. eye, leaving an ache afterward. 1. Coldness in upper abdomen; sweat upon chest; pulse full and strong, 58, headache lessened. 3. Dull pain in r. leg; sweat all over; stiffness of r. neck; tender on pressure. 3.30. Neuralgic pains in l. neck and shoulder; pulse 64, full and regular. 4.30. Tongue slightly furred, whitish; dull ache in occiput. 10. Nervous and fearful on falling asleep, no cause. 12. Urinated (unusual): all symptoms have subsided except heavy ache in occiput; pulse 59, regular and full. 2nd d. Dreamed of thieves; waked very nervous; pulse 62; scant urine on rising. 8 p.m. Pulse 74 (I think it has been higher between 12 and 1, but I could not time it); have been feverish for 2 h.; weight in occiput continues; occasional cough; free urine, dark coloured. 9.15. Pulse 62; headache gone; first stool since taking drug, thirst afterward. 3rd day, 7.30 a.m. Urgent loose stool, copious urine; again at 9 a.m.; well afterward. (Dr. A. W. WOODWARD, *communicated.*)

II. *Poisonings.*—1. A young man swallowed about ʒij of tinct. acon. between 6 and 7 p.m. At 11.30 p.m. in a state of great prostration; pulse imperceptible at wrist, heart's action scarcely audible, skin cold and clammy, eyes staring. Looked distressed, and did not wish to be interfered with; jaws firmly clenched (apparently voluntarily); pupils dilated, right nearly oval, left irregularly polygonal. Quite unconscious till death at 11.30, 5 h. after taking poison. No drowsiness. *Post-mortem.*—Both pupils slightly dilated. Dura mater and brain not congested, a little serum in ventricles. Dark fluid blood in both ventricles of heart. Lungs not unusually congested. Mucous membrane of pharynx redder than normal. Œsophagus pale. Some patches of congestion along large curvature of stomach. (H. SIMPSON, *Lancet*, 1855, p. 467.)

2. A maid-servant took a mouthful of tincture of root. When seen she lay in bed on back, eyes staring, pupils contracted, livid complexion, stiff jaws, coldness and pulselessness of extremities, short, incomplete, laboured breathing, weak heart's beats, sighing, tossing about arms, rattling and vibration in trachea. A zinc emetic was followed by convulsions, eyes turned up under lids, fists pressed against chest, teeth fast closed, thick frothy saliva between lips; urine and fæces passed involuntarily. Vomiting excited by tickling fauces, after which pulse returned in wrist. Continued vomiting, after which sight improved. Bilious vomiting, pulse again imperceptible, complained of oppression of head and præcordia. Jugular vein opened; when ten ounces of blood had flowed said she was better, breathing easier. Said she felt as though

she came out of a narrow, dark, hot room into a well-lighted one. Vomiting again; pulse became fuller, intermitted every fourth beat; præcordial oppression less. Pulse rose to 70, and later to 100; skin hot and dry. Next day pulse small, had little sleep, tongue furred, headache, dying away of hands. Next day well. Said that at first she felt shooting and prickling in arms and fingers, numbness in shoulders, tongue, and mouth, then in legs and feet. Later feeling of swelling of face and constriction of throat. Face blue and distorted; wished to go to bed; legs refused their office; fell down on stairs. In this state she was found. (SHERWIN, *Lancet*, ii, 13.)

3. A man, aged 45, had been treated in hospital 7 months for rheumatism of knee without benefit. He then got extract. acon. alc. in doses of 2 to 5 grains, with good effect on rheumatism. The supply being exhausted, a new extract was procured, and of this he took 5 grains. In ¼ h. had trembling and creeping in limbs attended by shooting pain. The shooting pain increased, the trembling changed to convulsions. A taste like pepper in throat and mouth. Soon afterwards vomiting of contents of stomach. During the convulsions he lost consciousness. When his consciousness returned the eyes were dazzled. At same time a fixed headache as if a hot iron were bound round head. After the convulsions profuse sweat. Pulse unequal and slow. 5 h. after poison had been taken, pale face, with expression of anxiety and restlessness, very mobile eyes, impatience, tosses about restlessly, and constantly changes position; speaks much and rapidly; cold tongue, feeling of burning in fauces, vomiting of slimy stuff; orthopnœa, 25 respirations per m., pulse 54, unequal, soft and full, as though blood did not fill the arteries. Mucous râles in lungs posteriorly. Heart beat only once against thoracic wall while pulse beat thrice, but contractions of l. ventricle were synchronous with pulse. R. auricle of heart seemed to be in a constant convulsed state, its movements were quick, irregular, and in no relation to motions of ventricles. The limbs began to get cold. No stool. After guaco, ammonia and rubbing in of tinct. canthar. on præcordial and dorsal region, reaction set in, and next d. he was well. (PEREYRA, *Gaz. des Hôpitaux*, 26th March, 1839.)

4. A man, aged 35, drank forty grammes of tinct. acon. Immediately heat and constriction in throat; extreme restlessness and could not remain in one place, complained of throat, and of burning down œsophagus. Extreme anxiety, tongue whitish, nausea; trembling when walking, staggering gait. Pain in fauces, extreme restlessness, fear of death. In 8 m. copious vomiting. In 2½ h. cannot stand upright, attacked by a kind of convulsions; upper and lower extremities drawn inwards, fingers dead, thumbs drawn inwards, fist cannot be opened. Legs adducted. Face covered with cold clammy sweat. Eyes turned upwards, showing only whites. Radial and temporal arteries pulseless. This lasts 3 m., then faintness. Thinks and says his last hour has come. Consciousness intact, but is quite blind. He then vomited small quantities, constant nausea. After 4½ h. extreme anxiety, intermission of attacks, and nausea. An emetic caused vomiting without relief. After 5 h. sight returned, but fits as frequent and more violent

"The result of the autopsy of this last rabbit in showing the localisation of the action of aconite on the endocardium induced us to make the experiments over again with a view to special observations on this point. This we did in the spring with the assistance of our young friend and colleague J. P. Tessier.

"Three rabbits were poisoned with subcutaneous injections of extract of aconite. The effect of the poison was very slow as the first extract given was very weak, and it was only after several weeks of the administration of the poison that the rabbits succumbed to its influence. The first two died with symptoms of convulsions, very predominant on one side of the body. The last rabbit was killed.

"The condition of the heart was about the same in all three.

"The sigmoid valves were healthy; they were thin, without colour, transparent, and visible only when raised with the point of a needle. The mitral valve was thick, as if infiltrated with a transparent jelly, having a slightly yellow tint; fibrinous granulations of a very pale greyish colour, as large as a millet-seed but rather longer, were found in the thickness of the valve chiefly nearest its free border. The last rabbit experimented on, the one which had been subjected to the action of aconite for nearly two months, showed in a part of the mitral valve a milky spot which occupied a third of the valve. The tricuspid valve presented the same sort of appearance, but less marked. The auricles and the r. ventricle contained coagulated blood. The l. ventricle was empty. The liver and the intestines were congested, especially in the rabbits that died spontaneously. The lungs were bloodless. The liver of one of the rabbits contained small granulations, hard and yellow, like millet-seed.

"It should be observed that in the healthy rabbit the mitral valve is always much thicker than the other valves of the heart." (*Bull. de la Soc. Méd. Hom. de France*, xiv.)

2. Aconite, when introduced into the system of one of the lower animals, produces, in the first instance, weakness of the limbs and staggering. The breathing then becomes either slightly accelerated, or slow and labouring. The paralysis increasing, the animal is at last unable longer to support itself, and lies down upon its side, with the extremities stretched out in a relaxed state. The general sensibility of the surface is impaired, and, towards the fatal termination, is altogether lost. Blindness, to a greater or less extent, soon supervenes; the breathing becomes gradually slower and more imperfect; and after a few spasmodic twitches, death by asphyxia occurs.

On examination of the body immediately after death, the heart is found beating with considerable strength, nor does its action cease for some time. The peristaltic motion of the intestines also continues. The irritability of the voluntary muscles is impaired, as is evinced by their being less easily excited to contraction by mechanical irritation than is usually the case, although they still respond readily to galvanism. General venous congestion exists; the r. side of the heart is distended; there is engorgement of the venæ cavæ, of their tributary veins, and frequently of the brain; venous blood may usually be detected on the l. side of the heart and in the aorta. The blood coagulates, and the muscles become rigid as usual. (FLEMING, *op. cit.*)

he felt a stoppage and interruption of the circulation of the blood in all his limbs; from wrists to finger-tips and from ankles to toes he felt no circulation at all. Later head was giddy, mist before eyes, look wandering; he had a constant humming hissing noise in the ears till the e. came on. When seen at n. lay with head propped up, eyes staring, teeth spasmodically closed, hands, feet, and forehead covered with cold sweat, pulse could not be felt, breathing scarcely perceptible, head drawn backwards. After emetics and stimulants made speedy recovery. (VINCENT BACON, *Phil. Trans.*, xxxviii, 287.)

8. A gentleman drank at 11 a.m. 2 oz. tinct. acon. root. In a few minutes appeared strange. Went out. Returned at 2.10 p.m.; went to bed; appeared drunk. Semi-delirious; very flushed face; intense dyspnœa; bathed in icy cold sweat; pupils widely dilated. Had walked to a friend's house, got a biscuit and wine, and returned walking. On his way felt as if his legs would give way under him, and vomited freely. Hot bricks in bed, extra blankets and brandy, and strong coffee; pulse not perceptible; heart sounds faintly heard. At 3.30 violent vomiting, got zinc emetic, which brought away grumous fluid. 4 p.m. Delirium continued; great muscular prostration; no pulse at wrist; temp 89°. At 4.30 castor-oil, which soon acted; pupils widely dilated; great dyspnœa, almost suffocating him; rallied by sinapisms and rubbing and hot bricks. 5.30 p.m. Tonic spasm, lasting considerable time; temp. 84°; pulse imperceptible. Hands and nails slate-blue. Hot coffee and brandy and water. At 12 heart-sounds more distinct; diplopia; intense thirst; temp. 89°; no power over lower extremities; great tingling and numbness in arms; sleepy. Next d., 4 a.m., pulse perceptible at wrist; dyspnœa better; temp. 95·4°. At 9 some sleep, refreshing; conscious; saw double; pupils widely dilated. Recovered in two days; pupils remained dilated three days. (L. H. JONES, *Brit. Med. Journ.*, 1877, i, 258.)

9. A gentleman drank some coffee. The coffee strainer had been used for preparing aconite tinct. He went out for a walk; had tingling sensation in mouth. Tongue felt too large, lips and face tingled, creeping sensation down both arms and thighs, giddiness, swimming before eyes, great weakness, inability to stand, stiffness in neck and back, head felt as if in a vice and was very heavy; felt that he wanted to draw a long breath continually; when he did so the giddiness was relieved. Symptoms gradually abated. (HEADLAND, *Lancet*, 1856, i, 342.)

10. A cabinet-maker about 16 d. ago had felt very unwell, suffering from influenza. At recommendation of friend took homœopathic tinct. acon. (dil. not stated) in 2-drop doses with benefit. Sent to chemist for more. Got strong B. P. tinct. Took 4 drops every 4 h., then felt very excitable, with prickly sensation over skin; this went off in 2 h. Repeated dose, and felt low-spirited and thoroughly miserable. Took 5 drops with return of despondency and prickly feeling, tingling hot feeling in throat, eyes restless, could not sleep, body burned with fervent heat. On attempting to work fell back on bench from weakness. Memory much affected; strange fancies possessed him; gave away a sovereign for a shilling; objects in the

light seemed to grow bigger and bigger. Left off acon. for 2 d., but strange feelings remained. Sent for more acon. A friend gave him 4 drops; 2 h. later took by mistake about 55 drops, and went to bed. Soon felt choking prickly sensation, with violent pain in stomach and bowels, as if a big needle were travelling through them; body seemed dry, and he felt as if it had been wasted (?); felt wretched and inclined to destroy himself. When seen next morning was highly delirious, talking all sorts of nonsense, imagining strange figures, goblins, &c., about bed, but rational at times. Mistook people, rambled incoherently. Shaking all over, but said he was warm; pulse 78; great oppression over cardiac region; fluttering in chest; headache; respiration at one time slow, then quick and shallow. Greatly exhausted; any exertion caused prostration, with quick shallow breathing, and diminished impulse of heart. Thirst, tingling in legs, arms, mouth, throat, and tightness in throat below larynx, which he said wanted cutting. At night in delirium attempted to cut his throat with a razor. Tongue large, thick, tremulous; sensation not much diminished; pupils slightly dilated, but sensitive to light; conjunctiva suffused; eyes looked brighter than usual. Was blistered, and got a stimulating mixture. Next day delirium continued; complained of difficulty of urinating; catheter passed brought away a great quantity of urine. Prostration and desire to commit suicide continued, always asking for a knife to cut something tight out of throat; tried to put a handkerchief and the bed hangings round his throat. Gradually recovered. (P. READ, *New South Wales Med. Gaz.*, iv, 43.)

11. A woman, aged 27, of bilious temperament and robust constitution, hitherto in enjoyment of perfect health, admitted to hospital in consequence of suspected syphilis from nursing a child. Appearance good, appetite, all functions, and pulse normal, nipples slightly excoriated. On 4th day got 2 drachms of acon. extract. 5th.—The same. 6th.—3 drachms. 7th.—½ oz. 8th.—Little appetite, skin and eyes slightly yellow. 9th.—Jaundice more marked, 1 oz. 10th.—The yellow colour darker, complains of nausea, cardialgia, anorexia; must keep her bed, 1 oz. 11th.—At n. nausea, vomiting, and delirium, expression much changed, look extinguished, can scarcely speak audibly, ½ oz. 12th., n., very restless, got out of bed several times, could not get in again without help, is tied down, great anxiety; no medicine. E., is unable to speak, lies in a stupefied state, eyes closed, facial muscles twitch, trismus, slow laboured breathing, pulse quick, irregular; skin burning hot. A pound of blood abstracted. 13th.—Jaundice slightly improved, other symptoms increased, abdomen swollen; the blood drawn has a yellow surface with soft crust. Another venesection; barley broth with 6 grs. tartar emetic, and 2 clysters with 20 grs. of tartar emetic in each. In the e. much worse. Venesection to 1 pound. 14th.—Soporous state, laboured breathing, with rattling. Barley broth with tartar emetic again prescribed, but she died at night. *Post-mortem.*—Cerebral vessels full of blood, no extravasation in ventricles, stomach covered with black gangrenous spots. (OTTO, *Reisen*, Hambg., 1825, pt. i, p. 377.)

12. A man who had a very small wound the size of a pin's head

she came out of a narrow, dark, hot room into a well-lighted one. Vomiting again; pulse became fuller, intermitted every fourth beat; præcordial oppression less. Pulse rose to 70, and later to 100; skin hot and dry. Next day pulse small, had little sleep, tongue furred, headache, dying away of hands. Next day well. Said that at first she felt shooting and prickling in arms and fingers, numbness in shoulders, tongue, and mouth, then in legs and feet. Later feeling of swelling of face and constriction of throat. Face blue and distorted; wished to go to bed; legs refused their office; fell down on stairs. In this state she was found. (SHERWIN, *Lancet*, ii, 13.)

3. A man, aged 45, had been treated in hospital 7 months for rheumatism of knee without benefit. He then got extract. acon. alc. in doses of 2 to 5 grains, with good effect on rheumatism. The supply being exhausted, a new extract was procured, and of this he took 5 grains. In ¼ h. had trembling and creeping in limbs attended by shooting pain. The shooting pain increased, the trembling changed to convulsions. A taste like pepper in throat and mouth. Soon afterwards vomiting of contents of stomach. During the convulsions he lost consciousness. When his consciousness returned the eyes were dazzled. At same time a fixed headache as if a hot iron were bound round head. After the convulsions profuse sweat. Pulse unequal and slow. 5 h. after poison had been taken, pale face, with expression of anxiety and restlessness, very mobile eyes, impatience, tosses about restlessly, and constantly changes position; speaks much and rapidly; cold tongue, feeling of burning in fauces, vomiting of slimy stuff; orthopnœa, 25 respirations per m., pulse 54, unequal, soft and full, as though blood did not fill the arteries. Mucous râles in lungs posteriorly. Heart beat only once against thoracic wall while pulse beat thrice, but contractions of l. ventricle were synchronous with pulse. R. auricle of heart seemed to be in a constant convulsed state, its movements were quick, irregular, and in no relation to motions of ventricles. The limbs began to get cold. No stool. After guaco, ammonia and rubbing in of tinct. canthar. on præcordial and dorsal region, reaction set in, and next d. he was well. (PEREYRA, *Gaz. des Hôpitaux*, 26th March, 1839.)

4. A man, aged 35, drank forty grammes of tinct. acon. Immediately heat and constriction in throat; extreme restlessness and could not remain in one place, complained of throat, and of burning down œsophagus. Extreme anxiety, tongue whitish, nausea; trembling when walking, staggering gait. Pain in fauces, extreme restlessness, fear of death. In 8 m. copious vomiting. In 2½ h. cannot stand upright, attacked by a kind of convulsions; upper and lower extremities drawn inwards, fingers dead, thumbs drawn inwards, fist cannot be opened. Legs adducted. Face covered with cold clammy sweat. Eyes turned upwards, showing only whites. Radial and temporal arteries pulseless. This lasts 3 m., then faintness. Thinks and says his last hour has come. Consciousness intact, but is quite blind. He then vomited small quantities, constant nausea. After 4½ h. extreme anxiety, intermission of attacks, and nausea. An emetic caused vomiting without relief. After 5 h. sight returned, but fits as frequent and more violent

than ever, temperature of skin sinks every moment; some shivering followed by icy-coldness; countenance hippocratic; head drawn strongly backwards; cracking of joints during fits; breathing stertorous, mucous râles heard at a distance. Mind quite free, not the slightest pain. Palms insensible, he does not feel deep pin-pricks. Counter-irritants were freely employed and iodine internally. After 7 h. reaction commenced, heart's beats again perceptible, pulse stronger, some vomiting, return of warmth and general comfort. After 8 h. appears better, profuse warm sweat, pulse 125, sensibility of palms returned, respiration free. He recovered, but for days retained in his features the expression of fright. (DEVAY, *Gaz. méd. de Paris*, 5th Jan., 1844, p. 12.)

5. A man got a drachm of acon. Immediately tightness of chest, pain in stomach, vertiginous obscuration of sight, unaltered pulse. He grew very weak, and thought he must die. On an antidote (bezoar caprarum) being given he felt better; there was vomiting with anxiety, which gave him hope, but he felt as if something collected in his stomach. Pain in occiput and throat, delirium, he whistled on a leaf. The delirium soon passed away. Complained of pains in stomach, head, jaws, chest, and here and there in joints. After 7 h. pains in all joints; abdomen distended as if he were dropsical; under the ribs tense, painful and hard; stitches in kidneys; retention of urine; one arm and one leg paralysed. Pulse intermittent and febrile. Some vomiting, several stools during d., complained of pressure and coldness in stomach, as if a stone lay there. Then came on a severe ophthalmia with discharge, the pain of which was so great he wished to die. In 8 h. all symptoms were gone, and in the m. he was quite well. (CLAUDIUS RICHARD, *Schenkii Observationes*, p. 876, 1524.)

6. A man, aged 27, got one drachm acon. In 1 h. began to vomit. He got 7 grs. of bezoar. Immediately vomiting of green bile, sensation as if a ball lay on scrobiculus cordis, that rose upwards and spread a cool air over crown and occiput; then paralytic feeling in l. arm and leg, impossibility of moving them, could still move hand. When l. side was relieved same occurred on r. side. Complained that all the vessels in his body grew stiff; vertigo, burning in head as though skull were filled with boiling water, spasms of eyes and mouth, a very severe pain in jaw as if it would fall off, congested eyes, blue face, black lips. Abdomen as if distended with water. Pulse and disposition altered with severity of symptoms; sometimes he despaired of his life, sometimes thought he would recover; sometimes he was quite rational, sometimes talked nonsense; sometimes wept, sometimes sang. Thirst for cold water. He three times lost his sight, and three times said death was nigh. Speech unaffected. In 7 h. was all right. (MATTHIOLUS, *Comm. in Discor.*, cap. 73, 1561.)

7. A man ate in a salad an unknown quantity of acon. root. He said he first felt tingling heat not only in tongue but also in jaws, so that teeth seemed to have fallen out. He imagined his face was swollen to double its size. The tingling heat gradually increased until it involved the whole body, especially the extremities. He felt unsteadiness in joints, especially knees and feet, and a twitching in the tendons so that he could scarcely walk across the room. He thought

he felt a stoppage and interruption of the circulation of the blood in all his limbs; from wrists to finger-tips and from ankles to toes he felt no circulation at all. Later head was giddy, mist before eyes, look wandering; he had a constant humming hissing noise in the ears till the e. came on. When seen at n. lay with head propped up, eyes staring, teeth spasmodically closed, hands, feet, and forehead covered with cold sweat, pulse could not be felt, breathing scarcely perceptible, head drawn backwards. After emetics and stimulants made speedy recovery. (VINCENT BACON, *Phil. Trans.*, xxxviii, 287.)

8. A gentleman drank at 11 a.m. 2 oz. tinct. acon. root. In a few minutes appeared strange. Went out. Returned at 2.10 p.m.; went to bed; appeared drunk. Semi-delirious; very flushed face; intense dyspnœa; bathed in icy cold sweat; pupils widely dilated. Had walked to a friend's house, got a biscuit and wine, and returned walking. On his way felt as if his legs would give way under him, and vomited freely. Hot bricks in bed, extra blankets and brandy, and strong coffee; pulse not perceptible; heart sounds faintly heard. At 3.30 violent vomiting, got zinc emetic, which brought away grumous fluid. 4 p.m. Delirium continued; great muscular prostration; no pulse at wrist; temp 89°. At 4.30 castor-oil, which soon acted; pupils widely dilated; great dyspnœa, almost suffocating him; rallied by sinapisms and rubbing and hot bricks. 5.30 p.m. Tonic spasm, lasting considerable time; temp. 84°; pulse imperceptible. Hands and nails slate-blue. Hot coffee and brandy and water. At 12 heart-sounds more distinct; diplopia; intense thirst; temp. 89°; no power over lower extremities; great tingling and numbness in arms; sleepy. Next d., 4 a.m., pulse perceptible at wrist; dyspnœa better; temp. 95·4°. At 9 some sleep, refreshing; conscious; saw double; pupils widely dilated. Recovered in two days; pupils remained dilated three days. (L. H. JONES, *Brit. Med. Journ.*, 1877, i, 258.)

9. A gentleman drank some coffee. The coffee strainer had been used for preparing aconite tinct. He went out for a walk; had tingling sensation in mouth. Tongue felt too large, lips and face tingled, creeping sensation down both arms and thighs, giddiness, swimming before eyes, great weakness, inability to stand, stiffness in neck and back, head felt as if in a vice and was very heavy; felt that he wanted to draw a long breath continually; when he did so the giddiness was relieved. Symptoms gradually abated. (HEADLAND, *Lancet*, 1856, i, 342.)

10. A cabinet-maker about 16 d. ago had felt very unwell, suffering from influenza. At recommendation of friend took homœopathic tinct. acon. (dil. not stated) in 2-drop doses with benefit. Sent to chemist for more. Got strong B. P. tinct. Took 4 drops every 4 h., then felt very excitable, with prickly sensation over skin; this went off in 2 h. Repeated dose, and felt low-spirited and thoroughly miserable. Took 5 drops with return of despondency and prickly feeling, tingling hot feeling in throat, eyes restless, could not sleep, body burned with fervent heat. On attempting to work fell back on bench from weakness. Memory much affected; strange fancies possessed him; gave away a sovereign for a shilling; objects in the

light seemed to grow bigger and bigger. Left off acon. for 2 d., but strange feelings remained. Sent for more acon. A friend gave him 4 drops; 2 h. later took by mistake about 55 drops, and went to bed. Soon felt choking prickly sensation, with violent pain in stomach and bowels, as if a big needle were travelling through them; body seemed dry, and he felt as if it had been wasted (?); felt wretched and inclined to destroy himself. When seen next morning was highly delirious, talking all sorts of nonsense, imagining strange figures, goblins, &c., about bed, but rational at times. Mistook people, rambled incoherently. Shaking all over, but said he was warm; pulse 78; great oppression over cardiac region; fluttering in chest; headache; respiration at one time slow, then quick and shallow. Greatly exhausted; any exertion caused prostration, with quick shallow breathing, and diminished impulse of heart. Thirst, tingling in legs, arms, mouth, throat, and tightness in throat below larynx, which he said wanted cutting. At night in delirium attempted to cut his throat with a razor. Tongue large, thick, tremulous; sensation not much diminished; pupils slightly dilated, but sensitive to light; conjunctiva suffused; eyes looked brighter than usual. Was blistered, and got a stimulating mixture. Next day delirium continued; complained of difficulty of urinating; catheter passed brought away a great quantity of urine. Prostration and desire to commit suicide continued, always asking for a knife to cut something tight out of throat; tried to put a handkerchief and the bed hangings round his throat. Gradually recovered. (P. READ, *New South Wales Med. Gaz.*, iv, 43.)

11. A woman, aged 27, of bilious temperament and robust constitution, hitherto in enjoyment of perfect health, admitted to hospital in consequence of suspected syphilis from nursing a child. Appearance good, appetite, all functions, and pulse normal, nipples slightly excoriated. On 4th day got 2 drachms of acon. extract. 5th.—The same. 6th.—3 drachms. 7th.—½ oz. 8th.—Little appetite, skin and eyes slightly yellow. 9th.—Jaundice more marked, 1 oz. 10th.—The yellow colour darker, complains of nausea, cardialgia, anorexia; must keep her bed, 1 oz. 11th.—At n. nausea, vomiting, and delirium, expression much changed, look extinguished, can scarcely speak audibly, ½ oz. 12th., n., very restless, got out of bed several times, could not get in again without help, is tied down, great anxiety; no medicine. E., is unable to speak, lies in a stupefied state, eyes closed, facial muscles twitch, trismus, slow laboured breathing, pulse quick, irregular; skin burning hot. A pound of blood abstracted. 13th. —Jaundice slightly improved, other symptoms increased, abdomen swollen; the blood drawn has a yellow surface with soft crust. Another venesection; barley broth with 6 grs. tartar emetic, and 2 clysters with 20 grs. of tartar emetic in each. In the e. much worse. Venesection to 1 pound. 14th.—Soporous state, laboured breathing, with rattling. Barley broth with tartar emetic again prescribed, but she died at night. *Post-mortem.*—Cerebral vessels full of blood, no extravasation in ventricles, stomach covered with black gangrenous spots. (OTTO, *Reisen*, Hambg., 1825, pt. i, p. 377.)

12. A man who had a very small wound the size of a pin's head

Aconitinum.—An alkaloid contained in A. napellus, and also in all other species of Aconitum save the lycoctonum. The German and French preparations differ widely in strength, as seen in two of the cases of poisoning which follow; the former is amorphous, the latter crystalline. What is commonly called "English Aconitine" is a secret preparation of Morson's and is believed to be made from the A. ferox. The alkaloid most abundant in this plant differs somewhat from ordinary aconitine in chemical composition, and has been called "pseudo-aconitine;" and Schroff's statement that the ferox causes much dyspnœa but no facial neuralgia is supported by the comparative results of the provings of Harley and Hottot respectively. The aconitine of Messrs. T. and H. Smith, of Edinburgh, seems identical with that of Morson; but the preparation of the British Pharmacopœia is made from the A. napellus, and would represent that of the French and German observers.

I. *Provings.*—1. DWORZACK.—Immediately after taking it, eructations and rumbling in bowels; head and face became suddenly warm; warmth extended over rest of body, was most intense in region of stomach, and was accompanied by sweat. Then arose peculiar drawing, pressing sensation in cheeks, upper jaws, forehead, in short through whole tract of trigeminus, increasing by degrees in intensity, alternating with actual pain, which, at first occasional and fugitive, finally became steady and severe. Pulse at beginning, coincidently with accession of warmth, was more frequent; but soon after sank below regular standard, was small, weak, and at times dicrotic. Pupil showed at first an unusual mobility, was at one moment greater, at another smaller, but finally became so much dilated that only a small ring of iris could be seen. Fulness of head becomes more marked; there sets in ringing in ears and feeling of pressure there, giddiness, and distraction. Flow of ideas is sluggish, long reflection impossible, and power of attention much impaired. After slightest mental exertion the head- and face-ache become very intense. There is a certain amount of relaxation in the limbs, and every muscular exertion—such, for instance, as going upstairs—is accompanied by unusual fatigue and prostration, and by increase of pain in head and face. Flow of urine very much increased.

As regards difference of symptoms according to different dosage,—eructations, rumbling in bowels, drawing stretching feeling in trigeminal tract, and primary rise and subsequent fall of pulse, were always present. A dose of 0·004 gramme was always followed by heat, tightness, and pain in head, lasting only a few hours; while after 0·01 gramme the symptoms recurred the day following trial on any attempt at mental or bodily activity. After 0·02 and 0·03 grammes, pulse sank to two thirds of normal standard, and remained thus low for more than 24 h., and for same length of time continued also pain in face and head, feeling of fatigue, weakness of memory, &c. Not until second day after experiment, when these doses were given, did condition become normal. (SCHROFF, *Prager Viertelj*, ii.)

2. HEINRICH.—0·05 gramme. Taste disagreeable and disgustingly bitter; in 10 m. burning sensation on tip of tongue and on lips; pulse

at first accelerated, but afterwards became slower, falling in 1½ h. to 47—52; whole body warm, perspiration set in, head dull and heavy, and therewith exhaustion and weakness; crawling sensation in the face, and feeling as if epidermis were scaling off; on skin appeared red spots as if from punctures; pupils dilated, pain in head and face, roaring in ears, weakness of muscles, and difficulty of respiration. Eructations and rumblings in bowels did not set in till 2 h. after dose had been taken. After supper burning sensation all over mucous membrane of mouth. The head- and face-ache lasted all the evening, as did also the debility; sleep disturbed. Day after proving pain in head and face returned, together with forgetfulness and trembling of legs.

Even from smaller doses these symptoms were constant,—acceleration of pulse at first and retardation afterwards, burning on tongue, and pain in face and head (particularly in the course of the supra-orbital nerve). A dose of 0·01 gramme was followed besides by inclination to cough, cough with easy expectoration, dryness in throat, eructation and exhaustion. (*Ibid.*)

3. Hottot.—Effects (of preparation known by his name) on self and two others.

a. When a. is applied to a sensitive part of skin, whether in solution in alcohol or as a pommade, it soon produces feeling of warmth, then of burning, accompanied with sharp pains and itchings; later on, one experiences weight and numbness in parts affected, they seem to be compressed by a heavy weight; at other times skin seems as though heaved up and contracted by muscles beneath; its colour is not modified; there is anæsthesia. These symptoms last several hours, sometimes a whole day; they are never followed by general disturbances.

b. Almost immediately after taking 3 milligrammes internally one experiences all over buccal mucous membrane sensation of acridity and heat, which travels rapidly to throat and later to stomach. This feeling soon becomes more and more acute; there is burning and numbness of lips, tongue and pharynx; at same time occurs salivation, often very abundant. To these local effects general phenomena are soon superadded; one first experiences malaise, feebleness, weight about head; then nausea, frequent yawning, oppression, and very pronounced muscular enfeeblement. Pulse rises, but to a slight extent only. Skin is moist. One is sensible of creepings on various parts of the body, and more particularly on the face and extremities. After a variable space of time depression increases, there is headache, often darting pains in face, sometimes accompanied by vomiting. Muscular enfeeblement greater, creepings more palpable, especially during immobility; limbs are as though benumbed, face tense and swollen; pulse falls, respiration is difficult, sensation of burning in throat becomes painful; profuse perspirations. Later on there is general prostration; bruised feeling in limbs; difficulty in grasping objects; the least effort exhausts, one feels enervated; respiration is slow and deep, pulse markedly lowered. Mind remains clear; rarely any tendency to sleep; pupil dilated, but far less energetically than by atropine; dilatation develops slowly and mostly ceases under influence of brilliant light. These symptoms last from 10 to 16 h., little by little pulse rises, respiration becomes more

Aconitinum.—An alkaloid contained in A. napellus, and also in all other species of Aconitum save the lycoctonum. The German and French preparations differ widely in strength, as seen in two of the cases of poisoning which follow; the former is amorphous, the latter crystalline. What is commonly called "English Aconitine" is a secret preparation of Morson's and is believed to be made from the A. ferox. The alkaloid most abundant in this plant differs somewhat from ordinary aconitine in chemical composition, and has been called "pseudo-aconitine;" and Schroff's statement that the ferox causes much dyspnœa but no facial neuralgia is supported by the comparative results of the provings of Harley and Hottot respectively. The aconitine of Messrs. T. and H. Smith, of Edinburgh, seems identical with that of Morson; but the preparation of the British Pharmacopœia is made from the A. napellus, and would represent that of the French and German observers.

I. *Provings.*—1. DWORZACK.—Immediately after taking it, eructations and rumbling in bowels; head and face became suddenly warm; warmth extended over rest of body, was most intense in region of stomach, and was accompanied by sweat. Then arose peculiar drawing, pressing sensation in cheeks, upper jaws, forehead, in short through whole tract of trigeminus, increasing by degrees in intensity, alternating with actual pain, which, at first occasional and fugitive, finally became steady and severe. Pulse at beginning, coincidently with accession of warmth, was more frequent; but soon after sank below regular standard, was small, weak, and at times dicrotic. Pupil showed at first an unusual mobility, was at one moment greater, at another smaller, but finally became so much dilated that only a small ring of iris could be seen. Fulness of head becomes more marked; there sets in ringing in ears and feeling of pressure there, giddiness, and distraction. Flow of ideas is sluggish, long reflection impossible, and power of attention much impaired. After slightest mental exertion the head- and face-ache become very intense. There is a certain amount of relaxation in the limbs, and every muscular exertion—such, for instance, as going upstairs—is accompanied by unusual fatigue and prostration, and by increase of pain in head and face. Flow of urine very much increased.

As regards difference of symptoms according to different dosage,—eructations, rumbling in bowels, drawing stretching feeling in trigeminal tract, and primary rise and subsequent fall of pulse, were always present. A dose of 0·004 gramme was always followed by heat, tightness, and pain in head, lasting only a few hours; while after 0·01 gramme the symptoms recurred the day following trial on any attempt at mental or bodily activity. After 0·02 and 0·03 grammes, pulse sank to two thirds of normal standard, and remained thus low for more than 24 h., and for same length of time continued also pain in face and head, feeling of fatigue, weakness of memory, &c. Not until second day after experiment, when these doses were given, did condition become normal. (SCHROFF, *Prager Viertelj*, ii.)

2. HEINRICH.—0·05 gramme. Taste disagreeable and disgustingly bitter; in 10 m. burning sensation on tip of tongue and on lips; pulse

at first accelerated, but afterwards became slower, falling in 1½ h. to 47—52; whole body warm, perspiration set in, head dull and heavy, and therewith exhaustion and weakness; crawling sensation in the face, and feeling as if epidermis were scaling off; on skin appeared red spots as if from punctures; pupils dilated, pain in head and face, roaring in ears, weakness of muscles, and difficulty of respiration. Eructations and rumblings in bowels did not set in till 2 h. after dose had been taken. After supper burning sensation all over mucous membrane of mouth. The head- and face-ache lasted all the evening, as did also the debility; sleep disturbed. Day after proving pain in head and face returned, together with forgetfulness and trembling of legs.

Even from smaller doses these symptoms were constant,—acceleration of pulse at first and retardation afterwards, burning on tongue, and pain in face and head (particularly in the course of the supra-orbital nerve). A dose of 0·01 gramme was followed besides by inclination to cough, cough with easy expectoration, dryness in throat, eructation and exhaustion. (*Ibid.*)

3. Hottot.—Effects (of preparation known by his name) on self and two others.

a. When a. is applied to a sensitive part of skin, whether in solution in alcohol or as a pommade, it soon produces feeling of warmth, then of burning, accompanied with sharp pains and itchings; later on, one experiences weight and numbness in parts affected, they seem to be compressed by a heavy weight; at other times skin seems as though heaved up and contracted by muscles beneath; its colour is not modified; there is anæsthesia. These symptoms last several hours, sometimes a whole day; they are never followed by general disturbances.

b. Almost immediately after taking 3 milligrammes internally one experiences all over buccal mucous membrane sensation of acridity and heat, which travels rapidly to throat and later to stomach. This feeling soon becomes more and more acute; there is burning and numbness of lips, tongue and pharynx; at same time occurs salivation, often very abundant. To these local effects general phenomena are soon superadded; one first experiences malaise, feebleness, weight about head; then nausea, frequent yawning, oppression, and very pronounced muscular enfeeblement. Pulse rises, but to a slight extent only. Skin is moist. One is sensible of creepings on various parts of the body, and more particularly on the face and extremities. After a variable space of time depression increases, there is headache, often darting pains in face, sometimes accompanied by vomiting. Muscular enfeeblement greater, creepings more palpable, especially during immobility; limbs are as though benumbed, face tense and swollen; pulse falls, respiration is difficult, sensation of burning in throat becomes painful; profuse perspirations. Later on there is general prostration; bruised feeling in limbs; difficulty in grasping objects; the least effort exhausts, one feels enervated; respiration is slow and deep, pulse markedly lowered. Mind remains clear; rarely any tendency to sleep; pupil dilated, but far less energetically than by atropine; dilatation develops slowly and mostly ceases under influence of brilliant light. These symptoms last from 10 to 16 h., little by little pulse rises, respiration becomes more

free, strength rallies, suspended appetite revives, in a word everything gets into good order again. The symptoms which persist to the last are acridity of throat, weight about head, and prostration.

c. Observation.—8.30 a.m. Six granules of a. of ½ milligramme each; pulse 68. 8.40. Feeling of heat in stomach. 8.50. General malaise, yawnings, eructations, turns of nausea. 9. Great heat of stomach; pulse 76; burning sensation at tip of tongue, general debility, muscular enfeeblement, turns of nausea. 9.10. Burning of lips, throat, and whole buccal mucous membrane. 9.15. Creepings in face and fore-arms; pulse 84. 9.30. Oppression, headache, feeling of acridity and burning of throat much more marked, salivation. 10. General depression, great muscular enfeeblement, sweats; pulse 68; turns of nausea, vomiting. 11. Creepings in face, which seems swollen and tense, also in fore-arms and hands, which are benumbed and heavy; pulse 60. 12. Breathing irksome; pain at temple and along course of supra-orbital nerve; abundant perspirations; pupil not dilated; burning sensation very painful in whole mouth and larynx; lips benumbed; abundant salivation, entire want of appetite, occasional nausea. 1 p.m. Same symptoms; complete prostration of strength, heavy gait, general enervation, slight tendency to sleep. 3 p.m. Headache with constriction at the temples, pupil dilated, respiration difficult; pulse 52. 5 p.m. Same symptoms; sensibility appears to diminish, especially in hands and cheeks; mind is clear, no drowsiness. 7 p.m. The symptoms appear to amend, the head clears, the creepings diminish, the depression is less; pulse 60. 8 p.m. There is marked improvement; respiration easier, acridity, dryness and burning of the throat less pronounced; there is, however, feebleness and general lassitude; pupil remains dilated; pulse 68. 8.30. Easy sleep without agitation or dreams. The following day on waking there remain no traces of the effects of a.

One notes in this observation that the irritant action of the a. upon the mucous membranes of the mouth and pharynx made itself felt only-gradually. This is owing to the fact that the a., having been conveyed directly into the stomach in the form of granules, could only exert its irritant action mediately; when, on the contrary, it is taken in solution, and is consequently in direct contact with the mucous membrane, its local effects make themselves felt almost instantly. (*L'Aconitine et ses effets*, 1863.)

4. J. Harley.—Subject of following observations was a large but lethargic man, aged 54, lamed by chronic sciatica. Pupils were a little unequal; at a given light r. was $\frac{1}{8}$, l. $\frac{1}{7}$. Pulse was 66, regular, of good volume and power; respirations 16 to 17.

In order to test the value of the following observations, I watched the effect of complete rest of mind and body on the respiration and pulse during 2½ h. as he sat still without once rising from his seat. After 1¼ h. pulse was 61, of initial volume and power, respirations 16; there was slight somnolency. After 2½ h. pulse was 58, not changed appreciably in volume and power, and respirations were 15; pupils were unchanged.

a. The $\frac{1}{200}$th of a grain of a.,* taken by mouth at intervals of 3 d., always caused slight tingling in mouth and face, coming on within 1 h. and lasting for 2 or 3 h. On another occasion, after gr. $\frac{1}{170}$, a faint glowing feeling in addition was perceptible throughout body, and there was a little somnolency. On another occasion, gr. $\frac{1}{160}$ converted glowing feeling into a numbing glow—a comfort able feeling as if he were going off to sleep, and, if he did not move about, actual somnolency. These effects attained their maximum 2 h. after dose; he felt warmer while they continued, and there was at the time and afterwards some difficulty in voiding urine.

b. Pulse being 66 and respirations 17, he took gr. $\frac{1}{160}$, and did not rise from chair for 3 h. After 40 m, pulse 60, unchanged, respirations 17; somnolency coming on. After $1\frac{1}{4}$ h., pulse 58, unchanged; respirations 16; pupils unchanged. Had slept for 20 m.; a general glow pervaded body. After 3 h. pulse 56, unchanged, unaffected by deep inspirations; respirations 16, regular. The glow and somnolency continued, and he had dozed several times; tongue and pupils unchanged, and he felt comfortable throughout.

c. On another occasion, after sitting still for $1\frac{1}{2}$ h., at the end of which time pulse was 60, respirations 17 to 16, I gave him gr. $\frac{1}{100}$. After $1\frac{1}{4}$ h. pulse 54, unchanged in volume and power; tongue and pupils unchanged. After 3 h. pulse 52, of initial volume and power; respirations 16, natural; pupils very slightly dilated (?). He felt warm and dozed much after the medicine.

d. He then took gr. $\frac{1}{60}$ repeatedly, at intervals of 3 d., at 9 a.m. The effects were uniform. The medicine "upset him" very much all d.; he felt languid and sleepy; could not hold his head up or keep his eyes open. He was giddy, and could not walk across room without help; vision was hazy; erect position induced nausea. He could not eat much on the medicine days on account of a difficulty of swallowing and a pain in back of neck and behind jaws in parotid region, so that in eating he had to press back of neck with hand. A glowing, tingling feeling pervaded the body, and there was a burning feeling in the gullet, as if a hot coal were there. The tingling in mouth and face came on within $\frac{1}{2}$ h., the somnolency after $1\frac{1}{2}$ or 2 h. At first he slept for 1 h., but afterwards sleep was dreamy and broken. Giddiness, dimness of vision and muscular weakness were most marked within 6th and 10th h. There was always some dysuria, and occasionally retention with hypogastric pain. Nausea was generally a prominent symptom, and pain in neck often remained until next d.

I kept him under observation for 3 h. after one dose, but could detect no appreciable effect on either pulse, pupils, or breathing. At the end of this time pulse was 60, of good volume and power, a trifle more compressible perhaps than before the dose; but this will always be found the case after a long rest of mind and body, and with a tendency to sleep. The respirations 17, regular and easy; tongue and pupils unchanged.

e. These observations were repeated on two other adult males with

* The pure crystallised aconitia of Mr. Morson, or of Messrs. T. and H. Smith, of Edinburgh, was employed in every case.

uniform results. Doses ranging from gr. $\frac{1}{75}$ to gr. $\frac{1}{60}$ always produce decided aconitism, general numbness and tingling, but most marked in face and throat; nausea, giddiness, somnolency, and muscular weakness. This latter is always a prominent effect, and strongly resembles the condition induced by hemlock.

f. F. G—, aged 12, a well-developed boy, afflicted with epilepsy. The $\frac{1}{100}$th of a grain given repeatedly at intervals of 3 d. produced following effects:

After $\frac{3}{4}$ h. tingling pricking sensation running up legs to spine and head, and tingling of fingers; much giddiness and somnolency, but sleep disturbed by frequent awakings. After 2 h. unable to walk or even stand without great exertion, and on rising from recumbent posture was unable to see for a m., and there was nausea. The effects lasted for 7 or 8 h., after which he slept quite comfortably, and felt quite well the next d. I was unable to discover any influence on the breathing, pulse, pupils, or tongue, nor was there any diminution of temperature.

This observation was repeated with uniform results on another boy, aged 9. (*St. Thomas's Hosp. Reports*, v, 146.)

5. Reil dissolved gr. $1\frac{3}{5}$ in 200 drops of alcohol, and took from 5 to 30 drops (gr. $\frac{1}{25}$ to $\frac{1}{4}$), diluted with water, in gradually increasing doses. He experienced feeling of fulness in cheeks and temples, which by degrees was exchanged for a painful sense of tension, formication, and prickling; the temples throbbed, the head ached, the eyes felt strained, the pupils were dilated, the sight was obscure, there was oppressed and sighing breathing, ringing in the ears, and increased urination. There was also a sense of heat in the stomach, with eructation, and, for 3 d. following, nocturnal pollutions to which the experimenter was not accustomed. (STILLÉ, *Mat. Med.*, ii, 311.*)

II. *Poisonings.*—1. A gentleman took gr. $2\frac{1}{2}$. He must have fallen almost immediately, and struck his head against the furniture; either the poison or the blow must have caused violent vomiting, as the floor of his room was found flooded with vomited matter; in 8 h. patient was fearfully collapsed, skin cold, sweating, and quite pale; heart's action almost imperceptible; pupils acted; no paralysis; intellect unimpaired; he suffered from severe vomiting, which recurred every 2 or 3 m., and was performed by a sudden jerking action of abdominal muscles, accompanied by a loud shout, probably dependent upon a sudden contraction of the diaphragm. Every attempt to swallow was followed by the spasmodic contractions so characteristic of hydrophobia, but they were not renewed by the sight of water. All these convulsive movements, however, were easily excited by simply touching him. Stimulants with opium were administered. He passed the night in spasms and exhaustion, but his intellect was perfect, even vivid; after a hard struggle seemed out of danger next d. (GOLDING BIRD, *Lancet*, January 1st, 1848.)

2. H. L—, labourer, was given, for a periodical hemicrania (he

* Referred to 'Mat. Med. d. rein. chem. Pflanzenstoffe,' p. 26, but this work not accessible.—EDS.

being otherwise well), a solution of nitrate of a. in tincture of chenopodium, which he was to take in increasing doses.

a. March 14th, at 7 p.m., took 5 drops (= 0·0004). Complained immediately of constricting and burning sensation extending from mouth to stomach. Feeling chilly, went to bed. At 9 p.m. took 20 drops, and experienced same sensation more severely. 15 m. later felt very sick and complained of fear that he would die; ice-cold sensation creeps up from his feet; in præcordial region an oppressive anguish, and excessive bitter and burning anguish in throat. His whole body is bedewed with a cold, clammy sweat; he cannot see any more; is dizzy and deaf. 15 m. later he vomited copiously, with gradual decrease of all the symptoms, and sleep followed. During whole time felt fearfully exhausted as if paralysed, with great difficulty of breathing. His wife says that his breathing was audibly rattling, but that consciousness was undisturbed. No urination during night nor any inclination thereto. Next m. felt tolerably well, and took a cup of coffee and an egg without any inclination to vomit. At 8 a.m. took 20 drops, and shortly afterwards the same symptoms reappeared. He grew cold, had sensation of anguish in præcordial and gastric region, breathing oppressed, was deaf and blind, and felt great malaise. His wife says that twitchings and spasms over whole body set in, especially in face. 20 m. after taking dose spontaneous vomiting occurred, with relief of all the symptoms.

b. At 11 a.m. 20 drops; same symptoms. With every dose state during intervals became worse. He felt continually weaker and more exhausted, with all energy lost, and sense as if paralysed. In the afternoon again 20 drops, with same result. Increasing constriction of mouth and fauces after doses. At 9.30 p.m. again 20 drops. Though medicine was always diluted with water, he drank now an extra quantity of cold water to prevent vomiting, and did not throw up dose. He went to bed, and soon fell asleep. Sleep restless, rather a slumber only. Between 11 and 12 he felt very sick, and called out, full of anguish: "So chilly, my chest, my chest, I feel awfully chilly, what shall I do? I am poisoned." Now genuine convulsions in hands, arms and face set in. He was totally blind and deaf. His eyes were closed, his lips dry and fissured, his tongue stiff, he could not open his mouth, he felt chilly and as if dying; breathing became rattling and moaning, quick. More severe convulsions alternated with quieter intervals. Draughts of strong hot tea were given half-hourly. His taste was entirely gone, so that he did not know whether the tea was hot or cold. 5 m. after drinking vomited copiously, with great rattling in chest. All this time he remained perfectly conscious. About 15 m. after having vomited felt some relief. With every subsequent vomiting, aided by copious draughts of hot tea, amelioration increased and chest felt more free. The symptoms gradually abated, and for an hour he enjoyed a quiet sleep with easy respiration. On waking he complained only of weakness. He passed no urine during the n., though he tried to do so towards m.

c. During 16th felt moderately well, but for pressure on chest, and sense of fatigue. At 6 p.m. 10 drops only. Immediately lost all

taste; burning in mouth and stomach returned; felt chilly—in short, all the symptoms returned, only in a more moderate degree, till vomiting 15—20 m. afterwards again brought relief. No more medicine.

d. L— further affirms that he felt during the intoxication a heaviness as of lead all over the body, always relieved by vomiting. During entire poisoning his colour was cadaverous. On 17th still complained of burning constricting sensation in mouth and fauces, his taste altered, and his vision unusual. A few days later complained of unwonted difficulty of breathing; his taste is not as good as usual, and the teeth are more sensitive when biting. The urine also passes only in drops, and less easily. No more hemicrania. (BUSCHER, in *Berl. klin. Wochenschrift*, 1880.)

3. Dr. Meyer, the physician who prescribed for the foregoing, drank 50 or 60 drops of the mixture in the wife's presence to assure her of its harmlessness. It seems that the alkaloid used was Petit's, which is 170 times stronger than Friedländer's, the latter being intended by the prescriber. Hence his patient's peril and his own death. He was found dead 5 h. after taking dose. At the autopsy 43 h. later, the body was strikingly pale and the jaws firmly closed.

Internal Examination.—Diaphragm on both sides reaches fifth rib; muscles of bright red colour; omentum pale and anæmic; cæcum partly filled with gas, partly with solid and fluid contents, its colour pale, no injected vessels visible. Duodenum from below upwards more injected, of darker colour as it approaches stomach, but mucous membrane intact. Interior of stomach strongly hyperæmic and brightened from intense vascular injection. Spleen of twice its size, of dark, nearly black-red colour: incised it is full of blood, soft and friable. Liver enlarged, exterior smooth, dark, posterior part nearly black: incised seen to be full of blood, but otherwise normal. Kidneys equally hyperæmic. The fluid contents of the abdominal cavity thin fluid and of bright cherry red colour. Right ventricle holds much bright red thin fluid blood; coronary arteries full of blood; in pericardium much bloody serous fluid. The very voluminous brain, even in its membranes, very hyperæmic: sinuses full of thin bright red blood. In hemispheres sub-arachnoid extravasations here and there. The grey substance of brain shows on surface of section small red blood points, the whole very hyperæmic, less so in the medullary substance.* (*Ibid.*)

4. *a.* N—, aged 62, of good constitution; never sick save some slight colds. After having felt well the day previous, went to bed March 20th, 1880, feeling unusually cold, and later felt an anxious pressure on the chest. An hour later, his wife heard him moaning, and found him in spasms, though fully conscious. As his state grew worse, Dr. Buscher was called at 3 a.m. He found the patient in bed, very restless but quite conscious. Skin very pale and cold, especially in extremities, which are bedewed with cold clammy sweat; radial pulse very small, irregular, dicrotous, sometimes it can scarcely be felt. Sounds of heart

* The post-mortem examination of the lad Malcolm John, poisoned with a. by Lamson in 1881, disclosed a precisely similar state of stomach, duodenum, liver, spleen and kidneys.—EDS.

only heard at apex, and scarcely distinguishable; heart's action very weak, irregular and quick. Breathing very laborious, short, very irregular, superficial, sometimes 40 per m., a few m. later much slower. Pupils contracted, with sluggish reaction; features spasmodically distorted, especially about mouth (facies hippocratica); swallows without difficulty; patient complains of terrible præcordial anguish; throws himself continually around in bed; conscious; very irritable and quick in his replies.

b. During my observation of patient (Dr. B. writes) a sudden change took place. The extremities turned colder; heart-sounds and pulse disappeared. His skin turned of a marble colour, face somewhat turgescent, pupils dilated, conjunctiva became injected, whole body bathed in cold, clammy sweat; breathing more laborious and superficial; tracheal rattling sets in; a peculiar, clear, short moaning is heard. Beginning in fingers, then in face, tonic spasms, trismus; after a while, clonic convulsions over whole body. Consciousness is lost. This convulsive paroxysm lasted about 5 or 6 m., during which we expected his death every second. It then abated; skin took on a better colour; a warmer sweat occurred; pulse could again be felt; sounds of heart became more clear, and its action, though irregular, at some moments was full and strong. Consciousness returned; opened eyes, and said, "I must have slept and had bad dreams." He tried to remove a mildly burning night lamp, as the light felt disagreeable. This amelioration lasted 15 m. (though the præcordial anguish and chilliness continued), and then the convulsions returned in same manner as before, followed by relaxation with same phenomena. During this attack respiration nearly stopped, and the pupils were found insensible to light.

c. Fully conscious again, he replied to question how he felt: "Pretty fair, only I feel a terrible anguish in the gastric and cardiac region, and it is dreadfully cold." The anguish he believed to be diaphragmatic. No other pain; of his whole body he feels only these regions and his head, all other parts seem as if filled with lead; no headache or vertigo, only some deafness.

d. Immediately after taking a large cup of strong coffee, copious vomiting. A second cup, shortly after taken, remains, as also ether given in full doses and strong Spanish wine. Vesicants and sinapisms along medulla and on the extremities. Another exactly similar convulsive attack occurred, but lighter and shorter than before. With returning consciousness he complains now of deathly lassitude. Requested to state his sensations before the convulsions set in, he replies: "I get colder and colder, become blind and deaf; I feel as one sleeping and dreaming." Now continuous severe vomiting occurs, during which convulsions decrease in duration and strength, and intervals of relaxation lengthen. At 5 a.m. danger seemed to have passed, and at 7 nothing remained but some præcordial anguish and sensation of coldness, with slight spasms. At 10, after a refreshing sleep, he awoke well. He did not urinate till noon, when 200 grammes, of dark colour, were passed.* (*Ibid.*)

* It is merely said, with reference to this case, that the quantity of the drug taken

III. *Experiments on Animals.*—1. VON PRAEG. The following are his conclusions from various experiments:

Respiration was more or less retarded in the mammiferæ; beatings of heart become irregular; muscles are relaxed; there is excessive feebleness and inertia, horror of all movement (so to speak) in the most acute cases paralysis of all the muscles is the most frequent symptom. The action of a. is thus to depress the muscular system without previous excitation. The brain was evidently attacked, in three cases loss of consciousness, and in all a certain apathy was present, in one case complete anæsthesia; eyes become very sensitive, pupils dilated. Stomach presents symptoms common to all poisonings, retching, vomiting, &c. Urinary system was affected (ischuria) in one out of 13 experiments: 3 salivations. With dogs, mean length of intoxication was 5 h. 10 m.: greatest length, 28 h. 40 m.; least, 11 m. Largest dose was 2 grs.: 1½ grs. injected into jugular occasioned death in 11 m. With birds, general depression of muscular system; dilated pupil was only seen in one case, salivation in one case. With frogs, very speedy adynamia soon followed by paralysis, loss of reflex irritability, and complete anæsthesia; hind paws, front paws, finally muscles of head, were successively paralysed; in one case, respiration was suddenly suspended, in another it was, on the contrary, stimulated; heart preserved its reflex irritability just as long as in cases where the heart is simply cut out. With fish, same symptoms on part of muscles, dyspnœa and diminution of respiratory movements. Post-mortem examination showed membranes of brain very much congested, as well as brain itself, jugulars distended with blood. The blood varied, in some cases viscid and uncoagulated, in others there were firm fibrinous clots as after natural death. (*Virchow's Archiv*, vii, 438.)

2. HARLEY made 9 experiments with hypodermic injections of alkaloid in horses, dogs and cats. His results (which he considers to present "the most perfect uniformity") he sums up thus:

a. Aconitia affects a portion of the cranio-spinal axis in the same manner that strychnia affects the whole.

b. The focus of the action is the medulla about the roots of the pneumogastric, hypoglossal, and spinal accessory nerves. Thence its influence radiates along the cranio-spinal axis with rapidly-diminishing intensity, as far forwards as the centres of the third nerve, and as far downwards as the origin of the phrenic. The centres about the focus of action are more or less in a state of constant excitation, while those towards the limits are sometimes in a state of depression and sometimes in one of excitation; thus, for example, during a spasm the pupils may be completely contracted, but in the intervals, and always after moderate doses, they may be slightly dilated. And so also with the diaphragm; it is enfeebled by small doses, and is alternately affected by spasm and exhaustion after large ones. Occasionally, however, and during the more violent suffocative spasms, the muscles of the whole of the anterior part of the body, including the anterior extremities, are involved in the attack.

c. Beyond the limits above indicated it exercises a depressing influence on the cranio-spinal axis, almost amounting to paralysis.

d. The action of the alkaloid on the sensory function appears to be co-extensive and co-equal with that on the motor function, the area for intense action having the same limits, beyond which the anæsthesiant action rapidly diminishes in intensity. Thus, while the head and neck are deprived of sensation, the rest of the surface is only partially affected, and the sensibility of the further parts of the body only slightly or not at all disordered. (*Op. cit.*)

3. DYCE DUCKWORTH. Experiments on cats and rabbits, with preparations of Morson and Smith. Given internally it occasions in the first instance a sensation of intense tingling in tongue and fauces, and almost immediately there supervenes an extremely abundant secretion of saliva, the involuntary flow of this liquid seeming to prove that at the same time the influence of the will upon the act of deglutition is almost entirely effaced; the respiratory functions are troubled in their turn, respiration becomes laborious and spasmodic, and is accompanied by cries more or less

---

was unknown. No statement is made as to any being taken at all; but it is put forward with the other as a case of poisoning with aconitine, and its symptoms are such as would be thus caused.—EDS.

vigorous according to the dose employed. One then observes vomitings, which may be referred to a disturbance in the functions of the vagus, because in the examination of poisoned animals one finds no lesion of the stomach. Later still, sensation is entirely suspended; the animal, as if mad, tosses itself about wildly, makes vain attempts to walk, takes prodigious leaps, and then falls on its side in a state of prostration, interrupted from time to time by convulsions; lastly, as ulterior phenomena, one observes the relaxation and growing embarrassment of the respiration, and, finally, a general and complete paralysis and death. Pupils in first phases of poisoning are more or less contracted, they dilate, on the contrary, extremely 2 or 3 m. before death, and remain in this condition at the moment when animal expires; after death they are sometimes dilated, while at others one observes in one or in both of them the alternatives of dilatation and contraction, and these variations sometimes do not cease till 12 h. after death. When, instead of giving a. internally, Fleming injected a solution of it into the veins, the dilatation of the pupil supervened almost immediately without being preceded by a contraction, which seems to be due to the fact that the poison acts then with a greater rapidity. The contraction again is very transient, and is rapidly succeeded by dilatation, when a. is given internally in sufficient quantity to kill rapidly. (*Brit. Med. Journ.*, 1861, i, 224.)

4. MACKENZIE. Conclusions from numerous experiments:

a. Aconite and aconitia act primarily on the respiration, by their influence on the respiratory centre and peripheral sensory branches of the vagus.

b. They have no direct action on the heart, and only affect this viscus secondarily, through the medium of the lungs.

c. Their action on the nervous system consists in firstly irritating, and secondly paralysing the peripheral sensory nerves and post. roots of the spinal nerves. They have no direct action on the brain or the vaso-motor nerves. They increase the irritability of the peripheral motor nerves and of the motor columns of the cord.

d. They do not induce muscular paralysis, but, on the contrary, increase the irritability of voluntary muscle.

e. They induce convulsions, mainly through their augmenting the irritability of the anterior columns of the cord, the motor nerves, and the muscles.

f. They firstly increase and secondly diminish temperature.

g. Death ensues from asphyxia and respiratory collapse. (*Practitioner*, xx, xxii.)

5. *a.* Aconitine is a narcotico-acrid poison whose irritating properties manifest themselves especially in the mucous membranes.

b. Aconitine acts on the nervous centres, and successively on the medulla, the cord, and the brain.

c. The symptoms appear in the following order: abolition of respiration, of general sensibility, of reflex sensibility, of voluntary motion.

d. Aconitine disturbs the functions of the heart by acting on the cardiac substance itself.

e. The effects of the poison on the peripheric nerves succeed to those it exerts on the central organs.

f. The excitability of the nervous filaments, motor or sensory, disappears from their terminal extremities sooner than from their trunks. (LIEGEOIS et HOTTOT, *Journ. de Physiologie*, iv, 520. 1861.)

6. *a.* As mechanical arrest of the circulation destroys sensation before voluntary motion, and as aconitia is a powerful heart poison, it occurred to us that perhaps it might paralyse by arresting the heart. Our experiments, however, disprove this surmise, for general and complete paralysis ensues far quicker after aconitia poisoning than after mechanical arrest of the circulation.

b. Since, after complete paralysis, the motor nerves still readily conduct impressions and the muscles contract upon galvanic stimulation, it is evident that the paralysis depends on the influence of the aconitia on the central nervous system.

c. Later, the poison abolishes the excitability of the motor nerves and the muscles, and also of the sensory nerves; and this effect, we have shown, is not due to its paralysing action on the heart. It must therefore act directly on the tissues.

d. Does aconitia affect all the tissues in an equal degree, or has it an especial action on certain tissues? If it manifests the same affinity for all tissues, then their functional affinity should cease in the order of their activity, and the phenomena

should be of the same kind and occur in the same gradation as after simple arrest of the circulation by extirpation of the heart. This, however, does not happen; for, after arrest of the circulation, we find that sensation continues as long, or almost as long, as voluntary power; but after poisoning by aconitia sensation is speedily abolished. Thus, in our experiments, sensation was destroyed, on an average, in 4 m., while voluntary power continued 20 m. We must conclude, therefore, that aconitia has an especial action on some part of the sensory apparatus.

e. Does it act on the afferent nerves, on the sensory tract of the cord, or on the sensory perceptive centre of the brain? According to Liegeois and Hottot it first paralyses the centre and then the nerves. While we think their experiments are open to objection, we think probably their conclusion that aconitia abolishes sensation by its influence on the brain is correct; and we shall also show that the early loss of reflex action is likewise due to its effect on the brain, for in brainless frogs it abolishes reflex sensation much more slowly.

f. We must conclude, we think, that probably aconitia has a special action on the sensory perceptive centre. Again, we must admit that it has an especial action upon the heart. Hence, whilst it is a poison to all tissues it is especially poisonous to some. (RINGER and MURRELL, *Journal of Physiology*, i, 232.)

7. *a.* BOEHM injected minimal doses (5—20 mgr.) of aconitinum muriaticum into the lymphatics of the thigh of frogs, and observed after a few m. on the exposed heart that the contractions became irregular. These irregularities appeared first in the auricles. After a while the disorder increased to cardiac spasms. The heart, full to overflowing in all its parts, made peculiar vermiform peristaltic motions, and with such celerity that it was impossible to follow its course. These spasms set in in irregular paroxysms, interrupted at first by longer, after a while by shorter periods, during which the heart's beat was more or less regular and rhythmical; still it could be observed that the activity of the ventricles was much inferior to that of the auricles, the latter giving 3 to 6 times as many beats as the ventricles. After these alternations of spasm and rhythmical contractions had lasted more or less time, according to size of dose, the picture gradually changed. The heart began to stand still relaxed in half diastole for an increasingly longer time after 6 or 8 regular beats. These pauses in the beginning lasted only 10 to 15 seconds; but when mechanical and other irritations were avoided their duration gradually became longer, and the intervening beats of the heart became always weaker and more superficial; still, if very large doses were not given, it was always some time before the action of the heart entirely ceased. Even after several h. he observed from time to time weak contractions in the auricles, when the action of the ventricles had already perfectly ceased. In the last stage of their activity the ventricles show only quite superficial movements. The heart gives the impression that its muscles had lost their ability to obey the regular rhythmical irritation or impulse to motion. After 5 to 7 h. the last vestige of motion had ceased.

b. Experiments with fractions of a milligramme constantly showed a more or less considerable acceleration of the beat of the heart (10 to 30 in m.). In some cases the acceleration diminished and the heart recovered itself fully, but it mostly formed the first stage of a series of manifestations, gradually more and more approximating the picture of poisoning with larger doses, as already shown. After the acceleration had lasted about 10 m. with perfect regularity of the heart's motion the already described spasms set in, but far more decided and outspoken than with larger doses. Auricles and ventricles equally take part in these spasms, which always set in suddenly and without preceding irregularities in the beat of the heart. The chief event in the rhythmic beat of the heart, the alternation of systole and diastole at regular intervals, has ceased, and it is nearly impossible to describe the ensuing phenomena. The muscle labours in vain to expel its contents—it throws them, as it were, from one corner of the heart to another—and thus a systole, limited to small spaces, rolls in vermicular motion over the whole heart. A stage of exhaustion follows this second stage of spasm gradually, but in longer time, passing over into a cessation of the heart-beats.

c. "We must also" (writes Boehm) "examine in what relation this poison stands to the vagus and the inhibitory centre. Our experiments were made in the usual way, by dividing the exposed nerve, testing its excitability, and then poisoning the animal. The excitation after the poisoning produces yet for some time an

evident retardation, but not a cessation of the heart's motion, and finally all the influence of the vagus on the number of the heart's beats ceases. If we irritate mechanically or by electricity the heart which has ceased to beat under the action of aconitine, we usually see no effect by applying the irritation at the apex of the ventricles, whereas an irritation at the auricles frequently produces rhythmical contractions of auricles and ventricles.

d. "Poisoning by aconitine may therefore be divided in its action on the heart into three stages—1, a stage of acceleration of the beats of the heart; 2, a stage of spasms of the heart; 3, a stage of cessation of movement in the heart.

e. "We did not know till now any poison which produced with certainty a direct acceleration of the beat of the heart in frogs. Atropine, from which we might expect such an effect *à priori*, and which really shows it in mammalia in a high degree, leaves the number of heart's beats unaltered in the frog. It seems, therefore, that the diminution of resistance solely, the so called paralysis of inhibitory centra, is not by itself able to increase the number of the pulsations. It rather seems that in the frog it still needs a direct irritation of the excito-motor centres to effect an acceleration; and this is probably what caused the acceleration in the first stage of aconitine poisoning.

f. "Experiments prove, furthermore, that aconitine gradually diminishes down to zero the excitability of the inhibitory nervous system. This diminution may contribute to the occurrence of the acceleration in the first stage, but is, I believe, of more importance to the second stage, *i.e.* the occurrence of the spasmodic peristaltic cardiac movements. The cause of the rhythm of the heart's movements is now generally supposed to stand in forces which arise in the so-called inhibitory centres, and as it were oppose themselves, as though they were obstacles to be overcome, to the motorial impulses which are continually proceeding from the automatic motor centres. In order to overpower them, the latter must acquire a certain potential energy, which, when the obstacles are overcome, passes over into vital force. After each movement some time passes till the necessary sum of potential energy is again accumulated, and thus arise the regular pauses between the beats of the heart and the rhythm. The number of beats, therefore, in a given time depends on the amount of the elastic resistance forming in the inhibitory centra, and on the power and quantity of motor impulses developing in the automatic centra. This rhythm ceases in the cardiac spasms of aconitine. The motor impulses fail to be garnered up to a certain degree, and they are not restrained by a sufficiently strong resisting power, but let loose these irregular movements. Even a very strong irritation of the excito-motor centres would not suffice to produce these spasms, because, according to the above theory, the resistance emanating from the inhibitory centres must cause a cessation of the motion after each overpowering of it. The irritation of the excito-motor centres is necessary for the rapid succession of motor impulses, but a paralysis of the inhibitory organs is necessary for the spasms; and this we witness perfectly in this stage of the action of aconitine.

g. "It may be asked, why then does not such a state produce tetanus of the heart, as all conditions for it are present? But there is an important obstacle to a lasting tetanic systole in this case. The excitation of the motor centres, which, as we are as yet bound to believe, lie scattered in various parts of the heart, must take place with a certain simultaneousness in order to produce a regular cardiac contraction. Aconitine abolishes such regularity, for we see in the spasms caused by it the different parts of the heart contracting one after another without regular succession or co-ordination. Thus the heart never contracts *in toto*, the blood is pushed from the most contracted parts to those less so, producing here and there a transient systole.

h. "We wish to draw attention to a remarkable consonance between the action of higher degrees of heat and that of aconitine. Cyon found that the heart, when exposed to gradually higher and higher temperatures, is retarded at first in its pulsations, and then accelerated. After reaching their acme, the beats become irregular, and symptoms set in similar to aconitine spasms, and finally the heart stands still in diastole. When Cyon, before the warming process, paralysed by curare the ends of the vagus, the primary retardation failed to appear, acceleration immediately set in, followed by spasms and cessation. The action of higher temperatures on the heart, preceded by poisoning with curare, exactly corresponds with the symptoms of

poisoning by aconitine; and we must consider both as an irritation of the excito-motor heart centres combined with a paralysis of the inhibitory nervous system, and of some, as yet unknown, regulating mechanism.

i. "The cessation of motion of the heart in diastole in the third stage of poisoning by aconitine is clearly a cessation from weariness. The heart shows all the characters of an organ semi-paralysed and wearied out by excess of activity and irritation, which may still by strong stimuli be spurred to transient activity, but which, left to itself, gradually entirely loses its vital qualities.

j. "We consider also of importance the change which the striped muscular substance, apart from the nerve-centres situated on it, undergoes under the action of the poison. This presumption is confirmed by the fact that the auricles, which have, as is well known, no striped muscles, cannot be brought fully to a cessation by aconitine; they still beat, though weakly, for hours after the death of the remainder of the heart. As aconitine shows a very severe action on all other striped muscles, we must suppose a complication of two actions on the heart, and it is probable that we have to consider the latter action as the most important cause of the cessation of motion in the ventricles by aconitine. That the impulses for rhythmical motion emanating from the motor centra have not ceased, and consequently that their cessation cannot be the cause of the cessation of movement in the ventricles, is proved by the continuance of rhythmical motion in the auricles, which, if our explanation of the action of aconitine be correct, are not accessible to the action of this poison on the striped muscular substance." (BOEHM, *Ueber Herzgifte.*)

ACTÆA RACEMOSA. See CIMICIFUGA.

ÆSCULUS GLABRA.

Æsculus glabra, Willd. Stinking Buckeye. Nat. Ord., *Sapindaceæ.*

I. *Provings.*—1. Two of my pupils once attempted to prove the buckeye, but did not continue the experiments on account of the apparent gravity of the few symptoms which manifested themselves. It caused vertigo, with reeling like drunken men, with nausea, with dimness of sight; fulness and heaviness of head; confusion of ideas; "a confused stupor;" thickness of speech; loathing of food; cramp in stomach, and sensation of fulness there; great weakness; trembling and strong tendency to contraction of legs; constipation. (HALE, *New Remedies*, 2nd ed., sub voce.)

III. *Poisonings of Animals.*—The general symptoms observed in cattle which have eaten of the fruit are distension of stomach and abdomen, reeling and staggering, apparent loss of sight, falling, paralysis of hinder extremities. In one case of palsy from it there was wry-neck, with convulsions and fixed eyes, ending in death. The fruit is used to stupefy fish by the Indians. (*Ibid.*)

ÆSCULUS HIPPOCASTANUM.

Æsculus Hippocastanum, L. Horse-chestnut. Nat. Ord., *Sapindaceæ.*

I. *Provings.*—1. Dr. BUCHMANN, æt. 40, sanguine temperament. Easily chilled, but in good health. *a.* Sept. 17, 1857.—At 3 p.m., chewed and swallowed gr. 30 of fresh kernel. Tasted like aloes. In 5 m. contractive pain in throat, nausea, tightness of chest; hot feeling n chest with cold risings; sweetish taste; hawking of thick mucus; frequent eructation; short cough, increased by swallowing and breathing deeply; violent burning in throat with raw feeling there. Voice became hoarse; speaking brought on the cough. Dry feeling

and sensation of heat in nose, especially point, as when coryza is supervening. Pains in r. scapula and in l. side of chest, increased by inspiring. Flying heat in l. side of face. Itching in anus. L. arm and hand become strikingly warmer, and feel as if swollen and heavier. Thin mucus from throat and (frequently) nose. After 2 h. two moderate stools, and symptoms disappear.

b. Oct. 4, 9 a.m., same dose. In a few m. nausea; burning and scraping in throat, exciting cough; tightness in chest, pressure in pit of throat, as if something had stuck there which needed expulsion. Raw feeling in chest, and throughout nasal cavity; burning in nostrils and internal canthi. Sudden stitches throughout chest; frequent nasal defluxion; rheumatoid pain in r. scapula, itching in anus, shoots in orifice of urethra. In 2 h. symptoms had gone. (*Hom. Vierteljahrschrift*, x, i.)

2. Mrs. BUCHMANN, æt. 29, brunette, choleric temperament, nervous and sensitive. *a.* Took same dose Sept. 29th, 2 p.m. In a few m. nausea, retching, tightness of chest; raw feeling in throat and chest; heat in chest with cold rising, as after taking peppermint drops; hawking of thick, afterwards watery, mucus; pain in chest as if stone lay on præcordia, increased by deep inspiration; palpitation in frequent attacks; twitching from chest to l. shoulder; frequent eructations of wind with water. Burning like fire on swallowing, and whole throat was excoriated and constricted. Pain now in hypochondria through to back, especially on inspiring; chilliness and goose-skin; burning in palms and soles. At each eructation desire to go to stool. Within ½ h. three moderate stools. Feels very weak and extremely ill, totters when she walks, has pale, miserable appearance. Pains in sternum, as if a piece were torn out of chest; pains in small of back and cramp-like feeling in bowels, with urging to stool, ending in a fourth evacuation (2 h.). Flying heat and redness of l. side of face; yawning and stupefying sleepiness; pains in chest and abdomen alternately; eructations relieve. Slept well; next m. liquid motions preceded by griping.

b. Oct. 8th, 9 a.m., took gtt. v of tinct. Burning of throat and tightness of chest; retching; eructations and flow of water into mouth; tearing and jerking in r. arm, which felt paralysed and useless. Periodical palpitation; formication in nose; weariness. She falls asleep, when sitting, for ½ h.; on waking cannot recognise what she sees, knows not where she is, or whence come objects about her. Burning in l. cheek. Immediately after, sleep for another ¼ h. On waking, same dazed state; feeling as if board were on head; rigor for 10 m., cannot get warm, constant yawning; violent formication in nose and fauces; sensation as if air breathed in were colder; severe fluent coryza. On r. side of chest feels lung moving painfully up and down; at each inspiration, griping in bowels; pain extends from bowels to small of back. Pale, miserable appearance; feels like to faint; tottering gait. Symptoms gone in 3 h.

c. June 4th, 1858, took gtt. x. Burning in throat and stomach; great flow of water into mouth; severe periodical palpitation with great anxiety; cutting stomach-ache; constant yawning and weariness; tearing pain in back, r. side, and shoulders. Again on respiration feels r. lung move up and down; pressing downwards in abdomen; cramps

in bowels; constant jerking in r. arm; rigor as of ague for ½ h. Afterwards, four loose stools within ¼ h.; pains in small of back from abdomen; severe coryza; constant shooting and raw pain in throat; motions preceded by pinching in bowels. Later, stool of mixed character, with raw feeling in anus; disposition to sneeze; shooting pain in nose; weight in eyes; weariness; nausea; inclination to sleep. Looks ill. Duration of action 4 h. (*Ibid.*)

3. Miss W. B—, æt. 52, sanguine. Oct. 2nd, 2 p.m., took gr. 40 of kernel. Much raising of mucus, burning in throat, nausea, violent vomiting; aching in forehead, with feeling in it as during cold in head. Viscid mucus continued to be raised periodically; feeling in nose as after a pinch of snuff; heat in whole body; sensation in head as if intoxicated; tightness of chest; laboured breathing; heat in head and eyes; mucus in throat excites cough; eructations, preceded by flying heat; in 2 h. several thin stools. (*Ibid.*)

4. Miss N. N—, æt. 33, sanguine. Oct. 2, took gr. 40. Contractive pain and burning in throat; rigors; periodical tightness in præcordia with laboured breathing, later twisting there; pain in throat as if burnt; fatigued feeling as from long walk; rush of water into mouth; fluent coryza, with twisting sensation in front part of nose; pressure as from stone in pit of stomach; frequent eructations; inward cheerfulness and placidity. (*Ibid.*)

5. Mr. R. H—, æt. 48, pale, black hair. Sept. 30, 8.30 a.m., took gr. 40. Rising of thick mucus; heartburn for ½ h.; afterwards, tickling in throat causing cough for 1 h., with occasional eructation. Frequent call to expectorate mucus, which becomes watery; inclination to swallow; some urgency to micturition; sensitiveness of nasal mucous membrane to respired air, which causes feeling of coldness in nose; fluent coryza; frequent expulsion of flatus; stitches in l. side. Nasal mucus becomes even more watery, inspired air more felt; in 3 h. after taking drug severe fluent coryza, after which symptoms gradually subside. (*Ibid.*)

6. Mr. E. B—, æt. 22, blonde and sanguine. July 4th, 7 a.m., took 30 drops of tincture. Bitter burning taste, astringing mouth and gullet; occasional eructation; aching and rumbling in stomach; tickling in larynx, causing cough with mucous expectoration; coryza, with cool feeling in nose on inspiring; burning in mouth and gullet; water flows into mouth; shooting pain in sternum; aching in stomach extends downwards; shooting in r. side above hip, deeply seated; headache over l. eye; lachrymation, quivering of lids; flickering before eyes. In 1½ h. inclination to vomit; thence gradual decline of symptoms. (*Ibid.*)

7. *a.* Mrs. T—, æt. 54, nervous temperament. July 25th, at 7.45 a.m., 30 drops of tinct. Immediate nausea; in 15 m. burning in throat, of varying severity; eructation. In 15 m. more fulness of stomach; distension of abdomen, going off in perspiration; confusion of head; dryness of larynx. Vision clearer than usual. At n., jerking in r. eye; formication in front of temple; burning in mammæ. At 2 p.m. flatulent discharges with griping. Usual stool did not occur.

b. July 29th, 10 a.m., same dose. Same symptoms, with (at 11)

neadache over r. eye and leucorrhœa, also drawing in r. nostril as in violent coryza. (*Ibid.*)

8. Dr. C. W. Boyce, Aug. 24th, took 10 gr. of 1_x trit. Nausea immediately; and constant desire to swallow, with feeling of dryness and stiffness at throat when swallowing. 28th, 11 a.m., same dose. Nausea again, constant; with dryness and roughness of throat as from taking cold. At 5 p.m., 10 gr. more. For 2 d. after almost constant inclination to stool, without any, or with very slight, evacuation. Sept. 12th, 9 a.m., same dose. Sick feeling in stomach all d., but increased appetite. At 4 and 8 p.m., repeated dose. With nausea, salivation * and metallic taste, dryness of throat, and sense of dryness and itching in rectum, with stiffness of skin and adjacent cellular tissue, continuing several d. 24th, 3 p.m., 10 gr. "Diarrhœa of ingesta." For several d. following sensation as if mucous membrane of rectum was thickened, obstructing passage of fæces. Dryness of passage coincided, ending in a moist secretion; and soreness, with feeling as if something would pass off. Oct. 3rd.—Same dose. Dryness of throat and rectum. 4th.—Same. With dryness, tickling scraping feeling of laryngo-pharyngeal mucous membrane. Nose stuffy, as from catarrh, with sneezing. 5th.—Dose at 9 a.m. With throat symptoms of yesterday, stiffness also. After second dose at 2 p.m., increased dryness there, followed by secretion of mucus, as in catarrh. Dry uncomfortable feeling in rectum, which feels as if it were filled with small sticks. 6th—One dose. Dryness of throat for 6 h., painful. General prostration. 7th.—At 10, 4, and 9 same dose. In latter part of d. ineffectual desire for stool, with straining; dryness and heat in rectum, with feeling as if folds of mucous membrane obstructed passage, and as if, should efforts continue, rectum would protrude. For 3 d. after soreness there, with increased secretion of mucus and continued ineffectual desire for stool. 10th.—Two doses without effect, save nausea. 11th.—Early in m. feeling of emptiness and gnawing in stomach. Dose at 10 a.m. After eating stomach feels full, and considerable pain exists there for 4—5 h., with quite severe pain in r. side of head above temple. At 3 p.m., another dose. Soreness at tip of tongue; even thinking of drug produces nausea; rectal symptoms the same. (Hale, *New Remedies*, 2nd ed.)

9. Dr. Burt. *a.* March 14th, 1864, 10 a.m., took gr. 10 of 1_x trit. From 11 to 4, flying "neuralgic" or constrictive pains in various parts, chiefly about præcordia; and dull aching in small of back, increasing in severity, aggravated by motion. At 4, took gr. 20. Same pains, also aching in knees, and from pit of stomach to r. lobe of liver. At 10, with same pains, and feeling as if something had lodged in fauces, producing constant inclination to swallow, took 20 grains more. 15th.—Called up more than once in n., back always aching, as it is in m. At 7 a.m., took gr. 20. At noon, dull frontal headache; fauces feel dry and constricted, burning distress in stomach, frequent eructation, very tired and languid, back aches severely. During d. frequent pains in umbilical and hypogastric regions. For 2 d. no stool. 16th.—Very hard and dry stool at 7 a.m., followed by colicky

* Nausea and salivation recurred after almost every dose, and will therefore not be repeated.—Eds.

pain in umbilicus and severe cuttings in anus. At 9, took gr. 10. Internal burning, backache, flying neuralgic pains, and sensations in fauces, occurred as before. At noon, pulse being 68, soft and weak, took gr. 40. Same results; with frontal headache, great constriction of skin of forehead; with throat sensations, dry hacking cough; with burning, fluttering sensation at pit of stomach, lasting 5 m., and recurring five times; frequent dull aching in r. hypochondrium, and faintness at epigastrium. In e., frequent twitching of muscles under l. eye. 17th.—Very dry and hard knotty stool, voided with great difficulty; same on 19th with prolapsed feeling at anus after it. Symptoms had now subsided.

b. On 22nd, feeling well, took 20 grs. of pulverised nut at 10.30 a.m. In ½ h. smarting of tongue and eyes, constriction of fauces; dull umbilical aching. At 11.45, severe neuralgic pain in heart, lasting 10 m., and arresting breathing; r. hypochondrium and back beginning to ache. By noon all previous symptoms had recurred, and they lasted all day. In e. fauces looked dark and congested, and an evacuation took place with difficulty as before. 23rd.—On waking, still feeling as if portion of anus was prolapsed, with dull backache. At 9 a.m., took 30 grs. Same pains, with profuse secretion in nostrils, and feeling of much depression. At 4.30 p.m., another 30 grs. All pains worse; throat again shows much congestion; same kind of stool in e. 24th.—In m. tongue very much coated yellow, and sweet, flat, slimy taste in mouth. Burning distress in stomach continues; also backache on first rising, but it becomes easier on moving about. At noon, took 30 grs., with usual effects. At 2, great desire for stool: when passed, first part was black and hard, second of natural consistence, but white as milk; severe tearing pains in anus followed. At 4, took 40 grs. This e. congestion of fauces was accompanied with constant aching distress in them; legs also ached much, and he felt so weak that he had to lie down all the time. 25th.—Slept soundly; but pains in stomach, liver and back were all present on waking, with a severe frontal headache, which lasted all forenoon. Moving produced violent pains in sacrum and hips; urine was very high-coloured. Was obliged to lie down all forenoon, feeling feverish; hands hot and dry, but pulse 66 only, soft and weak. At 3, feeling very weary and low-spirited, took 30 grs. Nothing fresh occurred. 26th.—Slept soundly; backache went off on movement, and he felt well. At 10 a.m., took 60 grs. Pains in throat, heart, epigastrium, r. hypochondrium and lumbo-sacral region recurred in much force: with epigastric pain was weak, faint feeling. At 9 p.m., stool of natural consistence, but very white. 27th.—Symptoms moderating; dry, difficult stool in e. 28th.—The same, with frequent griping and desire for stool, which two soft evacuations do not relieve. 29th.—The same: stool black as well as soft. April 1st.—Still a good deal of pain in lumbar region, with soft mushy stool. (*Ibid.*)

10. Dr. T. C. Duncan, æt. 24. Well, save some weakness of bowels. May 6th, 1865, took gtt. xij of 2^x dil. During d. heat and soreness in epigastrium; memory and power of attention weak; slight pains here and there. In e. continued pain in back, shoulders and

neck, at times with pricking sensations; profuse coryza, with feeling in nose and forehead as if he had taken cold; fulness and itching at anus after walking a mile. 7th.—Slept well, but woke with still some symptoms of catarrh, dull heavy pain in back of neck; itching in anus, with some heat. At 8 a.m., took gtt. xv. Neck and anus sensations continued; ideas confused; no stool. 8th.—At 7 a.m., took gtt. xx of 1_x dil. Nausea; mouth and pharynx feel irritated; pressure, burning, itching and fulness at anus; flushes of heat over body; soreness of neck, with pricking sensations; head, chest and upper abdomen feel congested, later surface in general. Stool very costive; urine frequent and hot. 9th.—In n. distressful and exciting dreams; on awaking feels sore all over, feet swollen (became so on 8th after an ordinary walk), cervical glands slightly enlarged and tender to touch, limbs heavy and joints stiff. Throat, anus, stool and urine as yesterday. Mind still confused and temper very irritable. At 8.30 a.m., took gtt. xxx of 1_x. By 9 mouth and throat were dry; sharp, darting pains affected trachea, producing tickling cough; there was heat in stomach and thorax, and all over body; ineffectual attempts at stool, and soreness at anus. Yawning and stretching were followed by chilly sensations, especially when riding in cool air; anterior head feels light, posterior heavy and dull; great pain in sacro-lumbar region; whole body heavy, weak, sore, and painful on motion; r. hypochondrium tender, later full; lids twitch, balls are sore, and r. eye pains when near light; head tight and full, as in catarrh; itching of whole body, especially round waist. In e., after great fulness and pressure, and with much straining and shivering, expulsion of about 8 in. of fæces, like a rope, solid, knotty, first half dark, second light in colour; great soreness of anus, sphincter seemed unable to contract; about ½ in. protrusion, which he had to push up; great burning and itching. Had been very drowsy all day, and now soon went to sleep.

He now took no more medicine, but symptoms lasted 3 d. longer, Pains, soreness, heat and fulness, and languor, were present on 10th, with dull supra-orbital aching; want of control over tongue, which feels swollen; tenderness of abdomen; no stool. Felt dull, gloomy and despondent. Skin dry and hot, but sensitive to cold. On 11th, symptoms lessening; hard stool, with usual effects at anus; mind clearing. On 12th, a small stool, thin, watery, light-coloured, with some tenesmus. Easier altogether, but weak and disinclined to study. (*Ibid.*)

11. Dr. C. H. Lee began on Dec. 26th, 1863, by taking one drop of 3rd dil. Symptoms (acute febrile tonsillitis) which followed were quite foreign to the drug, and pretty certainly the results of cold. On Jan. 2nd, these having left him, took 4 drops of tincture. On 3rd and 4th, appeared hæmorrhoids like ground nuts, of purple colour, very painful, and with sensation of burning (prover never had piles before). On 6th, felt dryness in soft palate, fulness in head; urine dark, with some little sediment. Took 8 drops. On 8th, throat dry and swollen. Took ʒj. On 10th, throat same; severe headache as if head would split; desire to pass water often, but little at time. On 11th, with these symptoms, burning in throat and palate; much thick yellow phlegm in mouth; tongue coated yellow; bowels loose, stools brown;

urine scanty and dark brown, no sediment; pulse hard and frequent; dull aching in l. elbow. He took no more of drug; symptoms began to diminish on 12th, and had gone by 14th. (*Ibid.*)

12. Dr. H. M. Paine took from 10 to 30 drops of tincture daily from Sept. 28th to 30th. On Oct. 1st, general headache, with fulness in upper part. Very annoying vertigo all afternoon. General malaise. Same symptoms next day till 4 p.m. At 9, took 40 drops. A few m. after quick, severe griping pain in epigastrium for ½ h. On 3rd, felt miserably cross and disinclined for any labour. Headache and vertigo as before until e. At 10 p.m., took 40 drops, and same pain followed. On 4th, but slight disorder: took 40 drops more in e. On 6th, for first time since beginning proving had rather difficult stool. Forty drops in e. On 7th, another such stool, followed for 1 h. by slight soreness, aching and fulness in rectum. Took 50 drops in e., but no further symptoms were experienced. (*Ibid.*)

13. Dr. Woodward Warren, æt. 36, nervo-bilious temp., subject to gastric and bilious derangements. On May 22nd, 4 p.m., took 2 grs. of 1_x trit. Slight uneasiness in fauces, stomach and bowels ensued, with dull pains here and there in head. On 29th, same dose of 2_x, and same symptoms, but also ineffectual urging to stool, and constriction of rectum. 30th.—At 6 a.m., difficult scanty stool. At 8, took 3 grs. In 10 m. coppery taste, with increased saliva. Some headache and nausea after ½ h., and at 9 lameness and weariness in nucha and small of back. 31st.—Took 2 grs. At 9 a.m. copious soft stool, followed by burning and feeling of swelling and constriction in rectum. Slight symptoms as before in head and abdomen, also confusion in head and giddiness, with flushes of heat on surface from occiput to shoulders, and burning in ears. June 7th.—Took 5 grs. at noon. Same symptoms as on 31st; also burning and stinging deep in l. orbit, as if pain surrounded ball of eye, with feeling of coldness in eye; and (2.30) general feeling of malaise, with stupefying feeling in head, and lameness in the back. 8th, at 7 a.m., difficult hard stool, followed by burning and sense of constriction in rectum. At 9, took 3 grs. Same symptoms as heretofore. (*Ibid.*)

ÆTHUSA.

Æthusa Cynapium, L. Fool's parsley. Nat. Ord., *Umbelliferæ*.

I. *Provings.*—1. Nenning reports vertigo, relieved on rush of heat into head, with increased warmth of whole body and redness of face; sense of swelling of head, face, and hands in open air, disappearing in house; general throbbing headache; in forehead, down-pressing heaviness, painful throbbing and jerking, tearing (l.); in temple, sticking and throbbing in limited spot (l.); same sensations in vertex and occiput; burning in eyes; jerking and sticking in ears, and stopped feeling in them, with hardness of hearing; sudden stoppage of both nostrils for ¼ h., 5 m. after taking, recurring next m.; tearing in malar bones; sweetish taste; stitches in hypochondria, especially l.; sense of coldness in abdomen after each dose; tearing in muscles of neck and of forearm, also in foot. There was a sensation in several parts as of a glowing hot needle being plunged into flesh. Most symptoms disappeared in open air, but soon returned in house. (Hartlaub and Trinks' *Annalen*, iv.)

2. HARTLAUB had violent chill and external coldness in m. after taking dose; latter continued without thirst, for 2 d. On 1st somnolence, on 2nd great good humour. (*Ibid.*)

3. TRINKS observed violent pains in forehead, as if head were compressed from behind and above with great force. (*Ibid.*)

4. Dr. T. HARLEY administered large doses of juice of entire plant, of tincture of ripe and green fruit, and of fluid extract, to eight persons of various ages and sexes, without any appreciable effect following. He himself took freely tincture of fruit and 10 grains of oleo-resin, with same negative result. (*St. Thomas's Hospital Reports*, N.S., iv, 80.)

5. Dr. T. F. ALLEN took ℥ij of expressed juice of plant without effect. (*N. Am. Journ. of Hom.*, xxix, 495.)

6. T. W— took a drop of Æ. every h. during d. from 7.30 a.m. to midnight. Immediate nausea was produced by earlier doses. At 11 a.m., this, at first referred to mouth and pharynx only, extended down œsophagus into stomach, with rumbling and gurgling there and in upper bowels, and sense of fluttering in stomach, metallic slimy taste in mouth, with dryness. Forehead feels constricted, with sense of pressure as from within outwards. At 3 p.m. felt heat and pressure in forehead; at 5, stuffy sensation in r. ear, with feeling of coldness, also round about it as if in bone; at 7 aching in mastoid process. Noticed all d. that excretions (urine and perspiration) were increased, and secretions decreased. He also felt all in a glow, and perspired easily when walking home in a cold air. At 9 feeling in bowels as if diarrhœa was coming on. At 11 skin of hands (especially palms) dry and shrunken, as if washed in lye. On 2nd d. woke with intense frontal headache, with sensation of constriction from points vertically over each eye; relieved by pressure. Took 2 drops every h. from 7 a.m. to 11 p.m. By 9 headache had gone. At 11, sensation of tension as from band passing round forehead and made fast at each zygoma. At noon, feeling as if he had caught cold and a violent coryza was coming on. At 1, sense of heat and fulness in face, and pressure in frontal sinus and upper nasal passages. Nausea; general headache; excessive flow of pale urine. By 3, face was well, but he was beginning to look peaked and hollow-cheeked. Feet and limbs were cold down to knees, were more so an h. later. At 11 sharp cramps in small intestines, localised in spots, and quickly shifting from place to place. At midnight took 20 drops and retired. At 7 a.m. on 3rd d. woke with seething feeling in blood and heavy aching pain in lumbar and inter-scapular regions, also sense of indigestible load in stomach. Took 20 drops, and again at 8. Food tasteless (as also on 2nd d.). At 11 a.m. mouth and lips dry; skin has a dry, white, leathery, pinched look; cheeks are sunken; clothes seem loose. Felt nauseated all d. at sight of food; and load remained in stomach. On retiring had numerous fine sharp stabbing pains, lasting 5 m., some of which were so sudden and violent as to make him cry out. (Allen's *Encyclopædia*, x, 266.)

7. Mrs. P— took 5 drops of tinct. just before dinner. At once complained of heated, flushed feeling, with some nausea. In 5 m. drank some milk, and had to go into open air to keep from vomiting. In 5 m. more repeated dose, and drank ℥ij of milk; after 2 m. took 5 drops more. Violent retching ensued, with vomiting of phlegm only. After 10 m. took 5 drops more, which made her deathly sick, but she could bring up nothing but phlegm. Throughout this time she felt constant nausea, and had sensation in upper bowels as if she had taken an aperient which was operating. Eyes got watery and face flushed and hot.

8. Mr. H— took 5 drops before supper. At once heat all over and perspiration on forehead. Drank ℥ij of milk, and took 5 drops more. Had nausea, metallic taste in mouth, headache in forehead shooting upward and outward over eyes. He did not vomit, and in a few m. ate his supper. Headache, metallic taste and nausea continued till bedtime, with heat from fauces to stomach and upper bowels, and pain in latter regions as from something hard and indigestible. Some remains of same sensations next m., and increased flow of urine of sweet odour.

9. E. H. L— took ℥j of tincture in divided doses during 2 d., ʒj on 1st, ʒvii on afternoon of 2nd. There was slight uneasiness in stomach on 1st d., and decided weight and heaviness there on 2nd.

10. E. P. M— took 24 drop doses at 5 m. intervals. Pulse gradually fell from 76 to 57, and became soft. After 6th dose a slight constricted sensation about head,

and after 24th slight nausea, and loose discharge from bowels, of yellow colour, and sour smell.

11. Dr. St. Clair Smith took at 3.30 p.m. 180 drops. Immediately, burning in mouth, throat, and œsophagus, with profuse salivation and secretion of mucus in both mouth and throat; this secretion continued for some 15 or 20 m., with qualmishness, and was soon followed by a feeling of dryness of tongue and throat. There was much dizziness; and burning soon began in stomach also, and gradually increased, accompainied with acrid eructations, of rancid taste; heartburn lasted some time after, with inclination to hawking. Some nausea, with water-brash of sour hot fluid: at one time vomiting seemed inevitable. Later, uncomfortable qualmish feeling in stomach; also pain in forehead, a sort of crampy feeling, with disposition to contract brows; deep-seated sensation of coldness in transverse colon. Later, crampy aching in malar bones; pain in forehead increased, and is decidedly uncomfortable; occasional aching in occiput. Pulse, usually 76, after 2 h. is 90; and face is flushed. There was now weight in stomach, and uncomfortable feeling of indigestion, with uprisings of food (tasting spoiled) and hot liquid; pain in bowels as if diarrhœa would follow, but it did not; crampy constriction in heart, with feeling as if he could not draw a deep breath, pulse regular; same pain soon after in r. chest; aching in small of back. At 9 p.m. rapid sticking-shooting pain in l. temple and l. ear, continuing till he went to bed. (*Ibid.*)

12. Dr. Brugmans took a few grains in m. There followed violent headache, thirst, efforts to vomit, sticking pain in epigastrium, cutting colic and flatulence, desire to sleep, and general cold feeling during whole d. Sleep was very restless for first hours. (*Allg. hom. Zeit.*, lxxii, 56.)

II. *Poisonings.*—[We have determined to give no cases under this heading, as it has become exceedingly doubtful if Æthusa has any virulent properties. The negative experiments of Dr. Harley would not prove this, as he has since obtained similar results with Dulcamara, which we know to contain an alkaloid (solanine) of no slight activity. But analysis of the recorded cases of supposed poisoning with fool's parsley shows their evidence to be so very unsatisfactory that they cannot be trusted; and the probability is that the plant (in which no alkaloid has been discovered) is harmless.—Eds.]

AGARICUS.

Agáricus muscarius, L. Bug-ágaric. Nat. Ord., *Fungi*.

I. *Provings.*—1. Hahnemann, *Chronic Diseases.* Part II of original, Vol. I of translation. Contains 715 symptoms from self and ten fellow-observers.

2. Ohlhauth took a few drops of 1_x dil.: after ¼ h., while standing reading the paper, he noticed the paper moving with the beat of his heart; pulsations were as distinctly felt and violent as in climbing a mountain. Next day, after 7 drops of 1st cent., same symptoms recurred. (*Hygea*, xviii, 19.)

3. Kretschmar smelt at agar. 6 for 5 m., and when walking in open air, in cool summer weather, he felt burning and itching on ears and cheeks, also on both hands, as though they had been frozen and been affected by the winter's cold (he had had these parts frozen in infancy). On rubbing felt heat and swelling of those parts, and they got very red. This symptom continued to trouble him for four months. It lasted longest in hands, which in the cold autumn days, after long rubbing on account of the intolerable itching and burning, swelled to such an extent that the joints could not be distinguished (*Allg. h. Z.* ii, 62).

4. LEMBKE took 31st Jan., 6.45 a.m., 10 dr. mother tincture. 7 a.m. Pulse fell to 60 then to 54, equable, full, soft. Stitch in apex of heart. Feeling of exhaustion in legs, drawing and formication beneath skin on front of legs and towards internal side of sole. Heavy and confused head, resp. 15 per m. Stares before him without thought, weary. 7.5 a.m. Pulse 65. Sleepy, yawns and stretches. Slow and lazy, indisposed to think. Very weary in all limbs. 7.30 a.m. Pulse 60. In knees especially, a sort of internal trembling and powerlessness in legs. Great desire to sit in an easy posture. Inward chilliness and cool skin. When walking, very tired and disinclined to go on. Head heavy, call to urinate. 7.45 a.m. Pulse 70. Horripilation over hairy part of head. Respiration difficult. Flow of thoughts easily disturbed, and not readily recalled. Severe tearing over anterior surface of l. ankle-joint. Sinciput heavy and full. Much flatus discharged. Aching and bruised pain in elbows, esp. l. 8 a.m. Pulse 65. Yawning and great chilliness. 8.15 a.m. Pulse 60. The urine passed after much solicitation at 8.30, normal. Pulse 57. Urgent call to stool and some rumbling. Occasional chill through back and limbs. Resp. attended with an effort and superficial. Sometimes warm sweat in palms. Frequent call to urinate. 8.45 a.m. Pulse 60. Some drawing in lower part of l. leg. 9 a.m. Pulse 58. After stool, during which urine was passed, immediately a fresh call to urinate. This frequently happens afterwards. Slight chilliness when moving and in cold air, or when the cold fingers touch a warm part of the body. 9.15 a.m. Pulse 60. 9.45 a.m. Pulse 65. Much chilliness and constant cold hands and feet, yawning, frequent call to urinate, exhaustion, and dislike to movement. Rumbling in bowels, and fixed pain deep in umbilical region, increased by pressure. From 10 a.m. till 2 p.m., occasional pains in l. side of head; frequent call to urinate; while sitting, violent shooting in r. lung, causing him to hold his breath, relieved by pressure of hand on chest. Noon. Good appetite. 2.30. Stool with much urine. In l. thorax superiorly, pain in intercostal muscles. Drawing pain in l. elbow. 4.30 p.m. Painful aching in lower external front of l. thigh down into knee, then in l. sole. Tearing in r. occipital bone. Drawing in l. toes. The symptoms seem to increase in room and during rest. Repeated stitches in r. lung when sitting, making it impossible to draw breath, somewhat relieved by external pressure. 6 p.m. Tearing in muscles of anterior lower front of r. leg. 9.30 p.m.—1st Feb. Woke early (4.30), thereafter half-sleep, during which constant pressing pain in umbilical region, which did not quite wake him up. 7 a.m. Much rumbling; feeble call to urinate; call to stool. Dull drawing pain in abdomen going towards lumbar muscles. Jerking shooting in r. lung. 8 a.m. Stool as usual at 9 a.m.—2nd, 5.30 a.m., 25 dr. tinct. Sudden running through l. forearm, which fixes itself as a pressing pain at the base of the fingers. Heart's beats felt more distinctly and strongly. Sudden pain in middle of back. 5.50 a.m. Pulse 80, soft, small. Fine shooting in cardiac region. Drawing pain from l. upper arm to forearm. Drawing in l. inner ankle. 6 a.m. Pulse 60, soft, small. In l. leg about the knee, internal drawing and trembling. Crawling under skin in l. ankle. Painful drawing in muscles of l. forearm and over elbow.

In sinciput weight and confusion. The candle seems to burn more dimly. Pressure deep in head in front, at limit of hair. Shooting in muscles of anterior wall of r. axilla. Heat of head; like distant roaring or ringing in ears (like a distant water-kettle commencing to boil). Pulse 70, full, large. 6.15 a.m. Skin very warm, blood-vessels greatly distended. Drawing in l. tibia when walking. Peculiar feeling of weariness and stiffness between shoulder and towards nape. Fine pricking behind sternum. Call to urinate. Shooting in l. sole. Deeper breathing. Tearing in bones of r. side of head. Bruised pain in extremities, especially lower, removed by walking. Much yawning (though he had slept well at night). Oppressed feeling in chest, compelling deep breathing. Creeping and pressing in l. calf. Peculiar dull shooting from r. hypochonder and navel to sternum. Much rumbling in bowels. Internal chilliness and cool skin. Sinciput confused as if pressed in. Eyes sensitive to candle light, inclined to shut them. Creeping in dorsum of l. foot. Weary in knees. When walking through room great exhaustion and wish to shut the eyes; deep breathing. 7 a.m. Pulse 70. Constant desire to urinate. Shooting outwards from l. nipple, more in the muscles apparently. Constant pressure on upper part of chest like oppression, with repeated deep breathing when walking and sitting, with painful pressure behind sternum, and on both sides of it, coming and going, with feeling of weight in chest. Fine shooting in l. calf; urine normal. In stomach constant pressive sensation. Tearing in l. occipital bone. Drawing and pressure in l. intercostal muscles, in muscles of l. thigh, with bruised feeling of l. elbow. 8 a.m. Pressing pain in lower part of l. leg when walking. Stool and much urine, followed immediately by renewed call to urinate. The tightness of chest, deep breathing, stitches behind sternum, and the peculiar pressure on sides of sternum, continue even when seated. 9 a.m. Peculiar constant dull pressure deep in pit of stomach. Internal trembling in r. forearm to head. Bruised feeling in sacrum. Great sensitiveness to cool air. 9.45 a.m. When walking shooting in r. lung. Frequent call to urinate. Noon. When sitting the above-mentioned chest symptoms recur, especially behind r. border of sternum, where the pain is increased by inspiration. 2.30 p.m. When sitting some irregular strong heart's beats with feeling of oppression. Shooting in r. pectoral muscles. Pressive pain behind sternum. Drawing in l. wrist. Shooting in l. pectoral muscles; drawing in r. foot; boring in sinciput. Occasional oppression of breathing. Shooting in l. lung between fifth and sixth ribs, especially by breathing. 4 p.m. Anxious feeling of oppression in heart with irregular stronger beats. Boring in r. cranial bones and in ascending ramus of r. lower jaw. Soon after dinner (2 p.m.) and later great hunger. Shooting in middle of r. lung, increased by every breath drawn. 5.30 p.m. All day weary and heavy in legs; quantity of urine passed increased.—3rd. Towards m. many cheerful dreams about acquaintances, and when lying on l. side (his usual position in sleep) an acute pain in apex of heart, which, however, does not quite wake him up. M. Slight pressure behind sternum. Stool delayed, hard, scanty. Little hunger all d. Less urine passed during

d.—5th, 5.45 a.m., 60 dr. tinct. Weight in l. leg like lead. Creaksng of many joints when moved, lasting long. Constrictive pressive pain in l. elbow and r. shoulder. Pressing and tearing in l. cranial bones and in crown. Creeping like ants in tips of l. toes. Pulse 57, soft, small. 6 a.m. Slight chilliness on slight movement. Tearing in bones of sinciput. Heavy and full in sinciput. Itching, creeping in skin of l. sole. Bruised feeling of limbs, especially lower ones. Frequent deep breathing. Like small jerks in muscles of l. shoulder and betwixt scapulæ. Frequent yawning. Slight walking tires much. Shooting in r. pectoral muscles. Constant rumbling in belly, eructation of tasteless air and emission of flatus. When sitting the bruised pain and weariness are greatest. Eyes narrow, and shooting in border of lids as when very sleepy, with sensitiveness to candle light. 6.30 a.m. Involuntary closing of eyes. The edges of lids and conjunctiva lining them are redder, with shooting and tension. Feeling of weight on chest and deeper breathing. Internal chilliness frequently, increasing later on. Drawing pressure behind r. edge of sternum. Tearing in r. ankle-joint and r. knee, and dull drawing in upper incisor teeth, after exposure to cool air. Fine shooting in l. lung. Peculiar drawing and aching on the back parts of roots of upper l. teeth, including incisors. Till 7 a.m. pulse 57—60. Urgent call to urinate. Small jerks in lumbar muscles. Smarting sensation in mucous membrane of l. nostril. Slight exertion tires much, out of breath and bruised pain in anterior muscles. Continued pain deep in umbilical region. 7.30 a.m. Pulse 58. On taking a deep breath feeling of movement, almost shooting, in pectoral and cervical muscles. Stool with much urine. Tearing in various parts of cranial bones. 8.15 a.m. Pulse 70. Call to urinate increased. Bruised pain of some joints, but not so severe. Feeling of stiffness in tendones Achillis when rising from seat. Very great hunger. 9 a.m. Shooting in r. lung, in several parts, momentary. 9.45 a.m. Urine straw coloured. More or less violent pressive pain in umbilical region, sometimes rising up into r. side of chest. When walking slowly in open air much flushing of heat over back, twitching in face l. side. Anxious feeling in heart, and some stronger irregular heart's beats, which increase that feeling when sitting at 12.30 p.m.; this is repeated an hour afterwards. Stitches behind sternum hindering breathing. 2.30 p.m. Stitches on l. side of chest, between nipple and sternum, increased by every breath drawn; pulse 90, full, hard. 3 p.m. Stool and much urine. Peculiar bubbling sound in r. ear, frequently repeated. Tearing in various parts of cranial bones. 4 p.m. Pulse 85. Here and there painful aching in limbs. More or less severe tightness of chest, with occasional deeper inspirations and more distinct heart's beats, and a kind of oppression, especially behind both edges of sternum throughout its whole length, also later. 5 p.m. Pulse 84.—6th, 9 a.m., stool and much urine. All day more inclined for work and more cheerful than yesterday. More and more frequent urine. Several times oppression of heart when sitting quietly, and stronger heart's beats. Appetite small, chiefly for bread and butter. E. When sitting sudden stitches deep in chest close to dorsal vertebræ. Repetition of the bubbling

noise in r. ear.—7th and 8th. Sometimes shooting in one or other lung, especially when leaning forwards or stooping down; sleep short, uneasy dreams; stool regular. During the d. occasional shooting behind edges of sternum, and heart's beats irregular, stronger, and as though jostling one another, following a cessation of the heart's beats, combined with oppression, only when seated.—9th, 6.15 a.m., 2 drachms of tinct. Skin cool, but veins swollen, more so later on. Creeping in l. toes. Repeated bubbling noise in r. ear. Bruised pain in l. elbow and ankle-joint. Drawing and pressing in several muscles of extremities; pulse 80. Sensitiveness of eyes to candle light. Slight nausea. 6.30 a.m. Pulse 60. Pressive pain in some muscles of extremities, quickly coming and going, chiefly in extensor muscles. After 5 m., pulse 65, irregular in rapidity. Tearing in lumbar muscles when walking and sitting. Pain in l. shoulder-joint. Stitches in orifice of urethra. Much urging to urinate. Deeper breathing. Tearing in cranial bones, more l. side. Bruised pain in l. fingers, then in extensor muscles of l. leg. Smarting and narrowed feeling in eyelids. 7 a.m. Pulse 60. When sitting the muscular symptoms increase; they are slighter when walking. Jerking, drawing and pressure here and there in muscles of leg. Slight shooting in base of l. lung. Pulse sometimes as if double with a short after-beat. Pain in l. intercostal muscles beneath shoulder. Respiration superficial. Much yawning. When sleeping oppression in heart and stronger heart's beats. 7.15 a.m. Pulse 60, unequal quickness. Bruised pain in upper arms. Tearing pains in pit of stomach. Great noise of air and fluid in bowels. Flow of saliva. Till 7.45 a.m. pulse remains 60, of unequal rapidity, several slow full beats, then some rather quicker and less full. Pain in bases of r. fingers. The pupils, which were at first contracted, became afterwards visibly and persistently dilated. 8 a.m. Pain in dorsal muscles when seated. Pulse 65. 8.30 a.m. After long-continued urging to urinate, much urine passed and a soft stool. Persistent pain deep in umbilical region. 9.30 a.m. Pain along edge of ribs from back, encircling the body, worst when walking and standing, hindering respiration. When walking shooting in r. lung. Shooting behind sternum not increased by inspiration, but worst at end of expiration. Great urging to pass urine, which scarcely ever leaves off. 12.30 p.m. No appetite, though has eaten nothing. When sitting, tearing in legs; shooting in l. lung. When sitting, oppression in heart with some stronger beats. Tearing in cranial bones, on l. posteriorly. Increased pulsation of heart felt inwardly. Twitching pain in bladder. 3.30 p.m. Pain in some muscles of extremities. All afternoon very drowsy.—10th. On rising in morning, stiff pain in r. biceps when bending forearm, lasting a long time. Forenoon. Frequent micturition. During the day little appetite. When at rest oppression behind sternum, and some stronger heart's beats. Two softer stools during day. Profuse perspiration whenever he walks. Much thirst for cold water since noon. Afternoon. Urine scanty and dark coloured. On two different evenings has the following; when going to sleep an electric shock with twitching through legs, chiefly the l., and sudden complete waking, thereafter slept well.—11th., m., when sitting, inward drawing from pelvic

muscles to leg, which passes into outward trembling, with very warm skin, slow pulse. Sometimes slight pressure in various joints, and slight tightness behind sternum. (*Allg. h. Ztg.*, xlvi, 6, 25.)

5. Dr. ADLER, æt. 39, small, thin, black haired, sanguine-choleric temperament. Healthy, only suffers occasionally from hereditary hæmorrhoids.

a. Proving of agar. 2_x.—10th Sept. 100 drops 1 h. before breakfast. In ½ h. had full feeling in umbilical region, later pressure in stomach as from accumulation of flatulence. Symptoms all went off before breakfast, but ½ h. thereafter pressive pain and down-drawing in stomach, relieved by discharge of much wind.—11th. 200 drops m. fasting. Immediately nausea with inclination to vomit and aching on r. side of larynx, with cough irritation. Soon afterwards quite well. ½ h. after breakfast on taking a draught of cold water painful jerks in a loose tooth in lower jaw. This symptom recurred several times in ¼ h. on drinking cold water. About 10 a.m. transient vertigo with pressive frontal headache.—12th, 6 a.m., 300 drops. Soon pain in sinciput as if forced together from both sides, and feeling in belly as if about to be purged. About 8 a.m., shooting pain in r. temple above eye. On drinking water jerks in teeth as before. About 8.30 a.m., transient vertigo. 12, noon, spasm in stomach, urgent call to stool, which was copious, and could scarcely be kept back; just before had painful pressure on rectum anteriorly. 1 h. after noon meal prostration and weakness of lower extremities; stitches in r. calf, burning in rectum, and inflamed piles. E. Burning and itching on sternum, whereon were some pustules the size of a millet-seed with red areola. Sleep at n. much disturbed.—13th. Woke at 4 a.m. in cross temper, with transient shooting pain in head going from l. parietal bone to r. temple. Immediately afterwards pressure of flatulence against navel, lasting some m.; then momentary shooting pain in r. eyeball.

b. Proving of mother tincture.—14th. At 7 a.m., fasting, 4 drops of mother tincture. Immediately transient boring and pressure in stomach. 15th.—At 7 a.m., 5 drops. Thereafter empty eructation. ½ h. afterwards nausea on drinking cold water. 3 h. after breakfast violent pinching in umbilical region for a few seconds.—16th. At 7 a.m., 10 drops. Pressure in stomach for some seconds.—17th. At 6 a.m., 20 drops. Immediately a stitch in r. temple, then a stitch in l. temple, followed by slight pressure in the latter, lasting some m.; at same time great rumbling in belly. In ½ h. tearing drawing pain in r. upper maxilla and r. cheek, lasting some seconds. At 7 a.m., pressive pain in frontal region, and frequent empty eructation. 2 h. later painless twitching in r. masseter muscle like a jerking for some seconds. In afternoon heavy feeling and invincible drowsiness.—18th. At 6 a.m., 30 drops. About 9 a.m., vertigo. 9.30. Pressure and drawing in stomach, increased by pressing on it with the hand; forcing below the navel. 9.45. Shooting pain in r. frontal region. About 5 p.m., needle pricks in l. thumb, aggravated and also excited by slightly touching; painful lameness of r. upper and forearm, and slight fatigue of the latter on writing but little. Before midnight pressure in chest

and difficulty of breathing.—19th, 6 a.m., 30 drops. Frequently during d. attacks of anxiety, then oppression of breathing, compelling frequent deep breathing.—20th. 40 drops. About 1 p.m., pressive pain in r. eyebrow and burning in fauces, the lower surface of tongue on the r. sore and burning in several spots; the sore spots looked shaggy. About 5 p.m., transient twitching in r. side of head. On lying down at n. several blows in the heart and trembling in scrobiculus cordis with anxiety, caused by every little sound, also on waking in m. accompanied by stitches in umbilical region, frequent sneezing and yawning.—21st. 40 drops. About 11 a.m., painfulness of l. maxillary joint, aggravated by touching. About 2 p.m., shooting tearing in horizontal branch of lower jaw.—22nd. On awaking at 5 a.m., itching in borders of eyelids and considerable frontal headache. About 7 a.m., 45 drops. Then anxiety of chest and frequent sighing. About 9.30, stupefaction and drowsiness, better in open air. N. spent in restless dreams and half-slumber.—23rd. 50 drops. Immediately pressive pain in r. eyebrow, relieved by washing the body in cold water, but then becomes worse. After ½ h. stupefaction and vertigo, gnawing in scrobiculus cordis and pinching in belly. About 8.45, pressive frontal headache. About 10.30, understands what he reads with difficulty, though it is quite easy; reads with difficulty, because the print seems to move. In both eyes itching and burning. Great drowsiness.—24th. 60 drops. ½ h afterwards as if a pressive pain round about the whole head; at same time pressive pain in l. eyeball. About 8.30, forcing in l. groin and pinching in belly, lasting some m. Thereafter pressive pain in l. eyebrow for 5 m.; immediately thereafter transient pressive and shooting pain in r. eyebrow. About 10 a.m., twitching and shooting in r. temple and along zygoma. In the room vertigo, less in open air, but soon returning. 10.30 a.m. Stitches on l. side of hairy scalp, passing into pressive pain in crown. Piles highly inflamed and painful since yesterday. 6.30. p.m. Pressive pain in l. eyebrow. Woke at midnight with pains in stomach, as if flatulence pressed outwards. After discharge of much fœtid flatus the pains went off. (Three successive nights woke precisely at midnight.)—25th, 6 a.m., 60 drops. 9 a.m. Pressive pain in l. eyeball, lasting ¼ h. During the day slight vertigo. Woke at 2 a.m. with blows and aching pain in r. ankle-joint, then a very tiresome sensation in heart as though it were constricted, going off gradually in ½ h.—26th. On waking at 5 a.m. vertigo and tightness of chest that lasted almost all d. Violent burning in piles. Woke about every ½ h. in the night.—27th, m., violent forcing in the rectum after copious stool. Discharge of several ounces of bright red blood from rectum, with tenesmus. (Has had no hæmorrhoidal flux for years.) During the d. drawing pain in forehead to the eyes, going and coming.—28th, m., on waking twitching in l. eye.—1st Oct. 80 drops. Noon. Pressive and drawing pain in forehead, eyes and occiput; pressure in stomach, with frequent inclination to sigh. After noon meal uncommon drowsiness; drawing pains in head all the rest of d.—2nd. m., pressive pain in r. eyebrow. No further symptoms till 6th, when had in m. on waking out-pressive shooting pain in l. eyebrow, and

that n., about 1 a.m., transient blows in heart with anxiety, and transient burning in orifice of urethra. No further symptoms. (*Zeitschr. des Ver. d. hom. Aerzte Oesterreichs*, ii, 1863.)

6. Mrs. Adler, aged 29, since her confinement, nine months ago, very irritable; is stout, blonde, health good, catamenia always regular. 14th Sept. took 100 drops of 2_x aqueous dilution of agar. Immediately rumbling in belly, and pressure in sacrum for a few seconds. Then weight in scrob. cordis. Slept well at night, but awoke unrefreshed, with heat and heaviness of whole body.—15th, 200 drops. In ¼ h. severe shooting in r. side of head; later, shooting in whole head, worst on both sides of head, accompanied by stupefying vertigo, lasting ½ h. Catamenia came on at night two days too soon. At night restless sleep, constant tossing about owing to a tiresome shuddering in the whole body, as also in head, chest, abdomen and feet. 1 a.m., woke with violent tearing pain in all the upper teeth, lasting ¼ h. On waking in m., drawing pain in r. sinciput, palpitation, and the same heaviness in body.—16th, 7 a.m., 200 drops. 7.45 a.m., violent vertigo, must sit down often. No appetite for breakfast. 8 a.m., when sitting down on account of vertigo, suddenly a violent headache, pressive, extending into l. ear, soon followed by shooting pain in r. side of head. This headache continued more or less all d. 11 a.m., spasmodic contractive pains, from the scrob. cordis to deep into belly, with nausea, all lasting some minutes, then empty eructation alternating with three violent hiccups. 2 p.m., tearing pains in l. upper arm and lower teeth, with similar tearing or violent itching in l. ear, causing her to bore into the ear. When she lay on the affected side, the pains were aggravated; they lasted all afternoon with nearly equal violence till e., when they became better. Catamenia more profuse than usual, with violent tearing and bearing down pains in abdomen and back. Very cross, answered unwillingly. Dislike to work, ran restlessly from one place to another, though very fatigued in limbs and prostrated. E., a copious, soft, greenish stool. Twice, afternoon and e., attacks of shuddering all through body, several times palpitation of heart, water frequently rose into her mouth. On lying down at night, violent itching betwixt l. index and thumb, also in r. side of nape, and pustules the size of poppy-seeds appear on both places. Intolerable itching in external genitals lasting till next d.—17th, m., stupefying headache with vertigo lasting all forenoon. 11 a.m., difficulty of breathing and burning pain in cardiac region with palpitation. Afternoon, a dark green fluid stool; catamenia increased last night, restless sleep, waking frequently on account of violent drawing and tearing pain in teeth and sides of head; the little sleep was full of vivid dreams. —18th, m., dull headache with stupefying vertigo and palpitation of heart, somewhat relieved by getting up, but soon becoming more violent, with frequent chilliness; catamenia declining. Cross with herself, and sorry for herself; face pale and sunken, feels very prostrated. Felt as if the whole body was wasting away. This weakness and prostration on the slightest exertion, with palpitation and stupefying headache and vertigo, and the restless sleep with anxiety, lasted more or less for eight days, and alternated with one another. (*Ibid.*)

7. Rosalie A—, aged 60, single, no catamenia for fifteen years, lost both eyes in infancy from ophthalmia. Enjoys good health. Brunette, black hair, sanguine temperament.—14th Sept., 100 drops of agar. 2^x (always took the drops 2 h. after breakfast). In 1 h. rigor all over, with goose-skin, lasting 1 m. Never had anything like it before. —15th, 200 drops. In ½ h. violent rigor with goose-skin, then heat in head, with painful throbbing in frontal region and sweat on forehead, soon passing off.—16th, 300 drops. In ½ h. some stitches in hepatic region; next n. intolerable noise in both ears like that of a spinning-wheel, lasting several h.—17th, 10 drops of tincture. In ½ h. burning in l. eyebrow near temple, and creaking in l. occiput aggravated by pressure, lasting ¼ h. At same time deafness of l. ear, as if something lay before it. Some vesicles on hard palate, with sore pain in them. —18th, 15 drops. In 1 h. violent burning pain in l. eyebrow and occiput, with sensitiveness to touch; great general weakness. All lasting ½ h.—19th, 20 drops. Soon violent shooting and twitching in l. eyebrow, shooting in l. axilla and ribs of l. side. In ¼ h. nausea and great weariness; salt taste in mouth as from herring; then warmth streaming through the whole body.—21st, 25 drops. In ½ h. pinching in belly, scraping together in upper abdomen, stitches, then cutting in it, followed soon by violent bitter vomiting.—22nd, 30 drops. In ½ h. frequent empty eructation, then vomiting of a bitter fluid. Immediately afterwards in-pressive pain in forehead, then painful twitching in r. eyeball; soon afterwards tearing in l. thigh and calf, burning in stomach.—23rd, 40 drops. In ¾ h. belching of a salt fluid, then stitches in l. temple and sacrum, and soon after clawing in scrob. cordis, as with pincers.—24th, in ¼ h. bitter vomiting with shuddering all over the body, then transient stitches in rectum and r. lumbar region. Then pressure and twitching in forehead to the eyes, for ½ h. Then transient itching and sharp smell in nose, as though she would sneeze.—25th, no medicine. During the day frequent stitches in liver and r. lumbar region; pressive frontal pain all day.—26th, 30 drops. In 2 h. burning on crown with stupefaction and vertigo, she seemed to be turning round, so that she must quickly sit down on floor, otherwise she would have fallen. This vertigo lasted 2 h., along with it were nausea, shooting in liver and scrob. cordis. All day could take no food. Next day well except slight pressure in head. (*Ibid.*)

8. J. Baumgartner, aged 32, sanguine-choleric temperament, thin, subject to boils in different parts of the body, and a purulent discharge from r. ear, otherwise well.

a. His first provings were with dilutions made with 10 drops tincture to 80 alcohol.—24th Oct. Began with 8th dil. and descended gradually to the 1st, taking each dilution for 3 d., 100 drops every morning, and leaving a d. free between each dilution. From 24th to 29th no symptoms.—30th (7th dil.). Transient tearings in the fibrous expansions of different parts of the body, especially the outer aspect of the l. thigh. Since yesterday a pain on touching between eighth and ninth dorsal vertebræ; to-day there appeared on the same spot a painless pulsation, beating downwards, synchronous with the pulse, as though the aorta were in the spinal cavity. This sensation

lasted more than one hour, and was relieved by pressure.—From 1st to 3rd Nov. (6th dil.). Each time after taking the drug, pain in sacrum and increased flow of saliva into mouth, firmer stools. After noon meal inclination to vomit, without loathing of food, cutting searching pain in bowels, prostration of the bodily strength and inability to think, with internal restlessness that drove him from one place to another. At same time, feeling in head as though the frontal portion of the skull were enlarged and the brain there all stirred about, with pressive pain in both temples, dryness in gullet, yawning, and a painful sensation in fauces when swallowing saliva, as if something were torn.—4th. Boring pulsating pain in squamous portion of temporal bones, lasting more than 2 h.—From 5th to 8th Nov. (5th dil.). Firmer stools, the superciliary prominences are painful when touched, tenderness of the eyeballs, with constriction of them. The region between eighth and ninth dorsal vertebræ is painful on turning the body. In morning increased appetite, breakfast can hardly be waited for. A painful suppurating abscess, the size of a bean, has formed in the middle of the r. deltoid muscle. In the fibrous expansions of the extremities there occurred occasional transient tearings; in abdomen sometimes cutting pains with discharge of inodorous flatus, increased secretion of saliva and inclination to vomit. This last chiefly in the room, went off in the open air; at same time deficient thirst, chilliness in open air, and a pulsating pressure in the nasal bones, with sensation as though a swollen body in the upper nasal cavities would force itself out. E., increased heat of face, especially about the zygoma, dryness in throat, and flying stitches there on being touched.—From 9th to 11th Nov. (4th dil.). Painful pressure in eyes on moving them, and straining them by candle light. —12th. The pain betwixt eighth and ninth vertebræ recurred, it was drawing, and periodically extended to hyoid bone. After dinner inclination to vomit; the l. big toe, at the depression of the nail, is swollen and very painful.—From 13th to 16th (3rd dil.). Along with transient tearing and spasmodic contraction of the l. glutæus maximus, there occurred increased painfulness of the spine on turning the trunk, great dryness of the gullet, earthy taste, eructation, and obtuse pains, now in one now in the other frontal protuberance.—From 17th to 20th (2nd dil.). Empty feeling of head; disposed to quarrel, with great weariness of lower limbs, as if lead hung on to them. In the fauces a sensation as if some food had stuck there. Breathing interfered with by momentary stitches in cardiac region, with irregular, often intermittent, pulse. A cold sensation frequently in the glutæi muscles.—From 21st to 24th (1st dil.). Frequently felt tearing now and again in the fibrous expansions of the body, that of the skull not excepted, with uncommon weariness of lower limbs when walking, so that he must often sit down; at same time pain in sacrum and great drowsiness; the feeling of a foreign body in the fauces compels frequent attempts to swallow, which are as ineffectual as troublesome.

b, *Proving with tincture* ϕ.—25th Nov., 20 drops. Stitches in l. heel on treading, which extend up the leg; tension in the gastrocnemii; transient stitches in l. hip-joint, and a stretching pain in the articular cavity, as if the bone of the cotyloid cavity were severed from the sacrum,

This pain spread to the lower abdominal cavity, and then disappeared gradually.—26th, 7 a.m. 30 drops. Fulness of head, with a stirring up sensation as though the brain in the frontal region were an ant-hill; cutting boring pain from the l. anterior nasal orifice upward through the nasal canal extending into the nasal bone, just like an electric shock. Two small stools with slight burning in anus and discharge of cadaverous smelling flatus, at same time occasional transient tearings from behind through the chest without disturbance of respiration, and stitches in l. knee lasting several seconds, followed by weak feeling of the limb.—27th. During a walk—in consequence of a jump—a burning, shooting, dislocation pain beneath r. nipple, which prevents respiration for a few seconds. 4 p.m., great weakness of whole body; anxiety with breaking out of sweat, violent stitches in cardiac region, with intermittent pulse; at same time loathing without vomiting, and raging pain in r. hough.—28th, 7 a.m., 50 drops. No effect.—29th, 7 a.m., 100 drops. Soon empty feeling in head, dryness in throat, which was not moistened by swallowing saliva; inclination to vomit and once actual vomiting. The inclination to vomit continues after the vomiting; at same time great weakness, uncertain gait, stumbling over every object; pressure and heaviness in chest; involuntary sighing with accelerated heart's and pulse's beats, constant spitting of saliva, dry cough, which causes shooting pains in l. side of chest; rumbling in abdomen as if peas were shaken about in it; frequent quite soft stools, the call to which had to be quickly obeyed on account of paralytic weakness of the sphincter ani, feeble sexual function. Along with these phenomena there was a very acute pain at the twelfth dorsal and first and second lumbar vertebræ, with cold feeling in the glutæi muscles, and formication on the feet.—30th. Vacant feeling in head, indifference to the world, apathy in business, great dryness of the throat not removable by water or beer; a tiresome pressure in the fauces as if a foreign body were sticking there, which cannot be removed by swallowing; shooting burning pains from scrob. cordis to l. scapula, excited by deep breathing, and very much aggravated by coughing, sneezing, and hiccup; violent pains in spinal column on turning the body, especially in the region of the last dorsal and first and second lumbar vertebræ, which became pulsating after strong exercise. Weakness in sacrum, with pressive tensive pains in it. Cold feeling in glutæi muscles, which are spasmodically contracted and hinder walking. A shooting tearing now and then in the limbs on commencing to move, but going off on persevering; powerlessness and weariness of the whole body.—6th Dec. Head vacant, vertigo when walking, which makes the gait unsteady, tender gums; dryness of throat and sensation of a foreign body less, but roughness of voice with shooting pains in larynx on drawing a deep breath; weight and shooting pain in chest; quick pulse, intermitting every 30 to 40 beats; fluent coryza; several soft stools causing burning at anus.—10th. Cross and irritable, with vacancy of head, full feeling of upper nasal passage, with sensation as if a ball wanted to come down through nasal canal; pressive pain in sacrum as if it would burst, formication in feet, strong pulsation of heart felt down to the coccyx; quick pulse with painful stitches in cardiac region, with

great heaviness and weariness of lower limbs. All the symptoms, except the weakness, gradually declined to 14th Dec.—15th, 9 a.m., 150 drops. Soon afterwards he went out to walk, but whilst walking was seized with such weakness that he could scarcely go on; then there occurred four liquid stools with burning in anus, profuse perspiration all over the body, even on the hairy scalp; pulse at same time quick and small. On the hairy parts of occiput and along sagittal suture, small elevations appeared, which burned and smarted after scratching. During day, three more diarrhœic stools, with swelling of hæmorrhoids, and a strong forcing downwards of the bowels into the inguinal canal and pelvic cavity; after urinating the urine flowed on involuntarily for some time, so that the thighs and knees were often quite wet; it seemed that the sphincter muscle of the bladder refused to do its duty; at same time pressure in sacrum as if a weight lay on it, formication in glutæi muscles, and a coolness running down from the legs to the toes; sexual power almost extinguished. These symptoms gradually declined till the 25th Dec. The pain in sacrum lasted longest.—26th, 9 a.m., 200 drops. Immediately inclination to vomit, but not actual vomiting. The other symptoms were like the above, except a feeling as if the head were enlarged, and a cough attended, in the morning especially, by expectoration of large brown masses of mucus.—30th, 1 p.m., 300 drops. Soon slight burning in stomach, with loathing and heaviness of lower limbs; afterwards great drowsiness. At 1 a.m., sudden waking with ill-feeling and inclination to vomit, he had to get out of bed, and with great effort vomited several times undigested food. The pain in the fauces, as from a foreign body, was aggravated during the vomiting; after vomiting felt as if l. eyeball were enlarged. Constant salivation causing him to spit incessantly, great weariness, especially of the lower limbs, with trembling of them; insensibility and coldness of glutæi muscles. Constant twitching movements in sacrum and lower extremities, coldness of all the body with hot head, at same time as if destitute of senses and thought, followed by severe rigor all over the body.—31st. Had to remain in bed, he felt so weak. Severe headache that diminished in the e., and was confined to the forehead; pressure on root of nose, with feeling as if nose were stopped, which it was not, with dryness of throat; loathing, though the taste of food and drink was all right; shudder spreading from stomach over the body; swelling of hæmorrhoids with stitches in anus; sometimes violent shooting pains in rectum from flatus pressing down to the anus, and then seeming to make a backward movement in the pelvic cavity. Cough increased towards evening, quick pulse = 100, intermitting. Painless pulsation in spinal cavity. In back, sensation as if a cold air spread from spine over body. Fullness and pressive weight in sacrum, shooting pains in fingers and toes when at rest, creaking and cracking of them when moved, shooting pains now and then in general integument.—1st Jan. Many of the above symptoms declined or disappeared, but in their stead there came on a peculiar change in the urinary secretion. When the need to urinate came on, the sphincter muscles had not the power to retain the urine for a moment, it flowed out in several gushes, with

long after-dribbling which wets the thighs; the penis was cold and shrivelled. These symptoms gradually went off till 9th Jan.—10th, 9 a.m., 400 drops. Pressive pains in l. frontal protuberance, a stirring-up in brain, as if all there were moving about; confusion of thoughts with forgetfulness, weak sight, tearing in l. lower jaw, hiccup in throat; griping in bowels; frequent liquid stools with burning in anus; paralytic weakness of sphincter ani and vesicæ, so that the fæces and urine could only be kept back for seconds. Pressure in sacrum and hip-joints, especially in m. in bed, sometimes a sensation as if the painful head of the femur were separated or dragged from its cotyloid cavity, or the pelvic bones from the sacrum. Burning in glutæi muscles, salivation and formication in upper and lower extremities; great weakness of body, dry cough with wheezing under sternum, causing burning, accelerated heart's beat, with redness of face and tickling in the navicular fossa of the urethra, as if some foreign body were lodged there. Burning of tongue as from pungent tobacco, shooting in the second and third row of the ankle-bones and heel when walking, ill-humour and irritability, long, gentle, refreshing sleep. (*Ibid.*)

9. Joseph Copainigg, medical student, aged 23, choleric temperament, venous habitus, generally healthy, but suffers from tapeworm.

1st d., 8 a.m., 5 drops tinct. agar. 9 a.m., tension in pelvis and hypogastrium, transient griping recurring after short intervals, always commencing with a stitch, and gradually going off. From 9 to 10 a.m. The griping always more severe and more frequent, the stitches commenced in the pelvis, spread thence to the r. side of abdomen, along the iliac region to the r. hypochondrium, growing weaker in their passage, and at last going off completely. Tension in the whole abdomen, very disagreeable humour. From 10 to 11 a.m. pain in abdomen gradually declined, tendency to vomit, stomach felt full and as if seated just below the œsophagus, so that only the slightest effort would be required to vomit. In order to avoid this, he must cease smoking tobacco. Head very warm, dull drawing pain in middle of forehead betwixt eyebrows; heat and weariness of eyes, the eyelids every time they are shut leaving a burning feeling, just as when he has sat up all night by candle-light Great weariness of all the body; ill-humour, melancholy disposition; indisposition to all work. From 11 to 12 noon., cessation of griping in belly; head full, confused; dull, rather severe, pain along forehead and sagittal suture; constant heat in eyes; frequent yawning; weakness of whole body, restless disposition, dislike to tobacco smoking. From 12 to 1 p.m., head constantly confused; dull pain in occiput, which becomes severely burning on lying down, and while lying on the back goes gradually between the eyebrows. Every time he rises up a stitch in the forehead, whereupon the pain goes again towards the occiput. Heat and burning of eyes less, no appetite for dinner, a good deal of thirst. Afternoon, pain in head declining, heat in eyes gone, prostration of the whole body, but general feeling better. Cheerful humour. E., well.—2nd d., 8 a.m., same dose as yesterday. From 9 to 10 a.m., transient stitches in the r. hypochondrium in rapid succession, two or four at a time, and occurring after 10 m. Fulness of stomach, a flat feeling in it; it

seemed to be immediately below the gullet, inclination to vomit, and as though he should vomit on the slightest movement. Tension in abdomen. From 10 to 11 a.m., the stitches in hypochondrium less; head heavy, dull, a drawing pain just between the eyebrows; burning in eyes, which as well as the head feel hot to the touch; bitter taste, tongue dry; laziness and general prostration; ill humour. From 11 to 12 noon, head heavy, pretty severe pain along forehead and sagittal suture; head sways hither and thither as if intoxicated; ringing in l. ear, recurring three times in ½ h.; a feeling like ants crawling along vertebral column; chilliness in hands; nails quite blue, pulse small and hard; weariness of all the body; drowsiness, frequent and violent yawning; burning in eyes, especially when the eyes are shut and opened during yawning. From 12 to 1 p. m., the dull pain in head has gone into occiput; head always falling backwards, as though a weight were attached to occiput. Chilliness continues; hands quite blue, eyes always closing, weariness of body, ill-humour, obtuseness of senses, constant yawning, no appetite. Afternoon: invincible sleepiness, followed by 6 h. of undisturbed sleep. On awaking, quite well. Slept afterwards 9 h.—3rd d., at 8 a.m., 10 drops tinct. In ½ h. violent inclination to vomit, great nausea, but no actual vomiting. From 9 to 10 a.m., heaviness and bearing down in pelvis. Call to stool without result; drawing pain towards navel and r. hypochondrium, from pelvis upwards. Slight chilliness along spinal column and upper extremities; occasional yawning; cessation of inclination to vomit. From 10 to 11 a.m., gradual advent of rigor; face and hands quite blue, icy cold, pulse very small, hard; pain in abdomen gone; head rather heavy, constant prickling along spinal column and in occiput. Very frequent spasmodic yawning, with violent gaping recurring two or three times per m., laziness of whole body. From 11 to 12 noon, rigor gradually subsided, yawning less frequent; head dull, full, swaying hither and thither; obtuseness of sight and hearing; dejection bordering on melancholy; he feels quite stupid; eyes hot; eyelids burning, drawing pain in centre of forehead, drowsiness. From 12 to 1 p.m., rigor quite gone, agreeable warmth ensues, hands and face warm, no longer blue, yawning less; head full, the pain extending all over cranium, worse when touched, head swaying to and fro; unconquerable depression, weariness, laziness, obtuseness of all senses; the whole psychical sphere as if paralysed, hence a kind of stupidity, brain feels constricted, he is unable to think of a subject for a few minutes. Disinclination for all active exertion. No appetite; feet cold and staggering. He had to go to bed. Sleep soon came on and lasted 3 h. After waking, dull fulness in occiput, great weariness, tongue quite dry, little thirst, pulse small, often hard. Agreeable warmth all over the body.—The next three d. the drug was omitted, and the health was good.—6th d., 8 a.m., 5 drops. Up to 11 a.m. no symptoms. From 11 to 1 p.m.; dull undecided pain in centre of forehead, which goes off on pressing both temples, but returns more severely after a little. Except weariness, no other derangement of health. In afternoon, ill-humour, dejection.—7th d., at 8 a.m., 10 drops. Soon, inclination to vomit, then vomiting of mucus. A few glasses of water brought all in order, and the rest of

the d. quite well. 8th and 9th days, medicine omitted. 10th d., 8 a.m., 5 drops. No symptoms. (*Ibid.*)

10. Wenzel Hoor, medical student, æt. 22, thin, almost phthisical habitus, sanguine-melancholic temperament, with predisposition to pulmonary ailments. At the commencement of the proving quite well with the exception of slight catarrh.

11th Nov., 7.30 a.m., 5 drops tinct. From 8.30 to 9 a.m. frequent eructation with taste of apples, though he had eaten none. Catarrh worse in e., the cough very tiresome.—12th, 7.30 a.m., 6 drops. Between 9 and 11 a.m. eructation like yesterday, with slight nausea and inclination to vomit; all day dull aching pain in frontal region; stool noon and e.—unusual. Cough as before; restless sleep.—13th, 8 a.m., 7 drops. Urine turbid on passing, deposited in ¼ h. copious, white flocculent sediment, consisting of phosphate of magnesia; a glittering skin on the surface of the urine consisting of small elongated crystals. At n. copious perspiration; catarrh declining, cough better. —14th, 8 a.m. 8 drops. Urine like yesterday, catarrh as before.—15th, 9 drops. Urine very red and clear, but after standing an hour quite turbid, and depositing a red flocculent sediment.—16th and 17th. No medicine, no symptoms.—18th, m., 10 drops. Afternoon, urine fiery red, after standing an hour a red pulverulent sediment.—19th, 11 drops. All forenoon frequent eructation with taste of apples; inclination to vomit, dull frontal headache; noon, little appetite. Afternoon, urine milky, after an hour covered with a glittering skin and with copious white sediment. Two fluid stools.—20th, 12 drops. Frequent eructation as before. Appetite good; severe pressive occipital headache; pulse 80. E., great weariness, and disposition to sleep. Urine clear, with glittering skin.—21st, 15 drops. Frequent eructation. Great inclination to vomit; headache, in forehead dull aching, in occiput throbbing pain; appetite good, but after eating again inclination to vomit. Digestion bad; at 10 p.m. still the taste of food in the eructations. 6 p.m. The occipital pain went off, but the frontal pain remained till he went to sleep. During all this time the catarrhal symptoms were only observed in the forenoon.—22nd. Sleep restless. On awaking in morning dull headache, general malaise, pressure in gastric region. At 7.30, 20 drops. The smell of the medicine disagreeable, causing him to shudder. Immediately feeling of considerable illness, pale face, salivation, trembling of limbs, and frequent retching, but not vomiting. Pulse weak and slow. Must go to bed, where he got better in an hour. Inclination to vomit almost gone, eructation frequent, then rumbling in bowels. 10 a.m., pretty well, could get up, but there was still weariness of limbs. After taking the medicine the headache went off, and did not recur. All the rest of the forenoon slight nausea with copious salivation. Appetite for dinner pretty good; urine very watery.—23rd, no medicine. No symptoms.—24th. The smell of the medicine was so disgusting to him that he could only take 5 drops in a pint of water. Soon eructation, rumbling in bowels, confusion of head, which lasted till 11 a.m. and then suddenly ceased. Appetite for dinner good. Urine very turbid, cloudy.—25th, 6 drops. Nothing observed except red turbid urine, which deposited a copious

white flocculent sediment, apparently mixed with a red powder. Took 10 drops on going to bed at 9 p.m.—26th. Very restless n. On waking in morning dull headache and pressure in stomach. Took another 10 drops. Immediately watery vomit, with shudder through whole body. Ill feeling all forenoon. Pulse weak and slow; appetite bad. Urine in forenoon watery, in afternoon milky with a thick glittering skin, no sediment. Nausea and confusion of head until e. —27th and 28th. No medicine.—29th. The smell of the medicine, even greatly diluted, caused retching, so that he could not take any. —30th, 10 drops on sugar. All forenoon frequent sour eructation, rumbling in bowels, slight headache. Two fluid stools; urine red and turbid, without sediment.—1st Dec., m. 10 drops on sugar. 9 a.m. Violent frontal headache, with contraction of frontal and palpebral muscles. Nausea, ptyalism, inclination to yawn, pulse weak, appetite and digestion weak, frequent eructation with taste of food. Urine milky, turbid, with white flocculent sediment. Two stools; general weakness and prostration.—2nd, 3rd, and 4th. No medicine.—4th. Digestive organs in order, appetite good, weakness gone, pulse normal, urine reddish with slight reddish sediment.—5th, 10 drops on sugar. Forenoon, sour eructation, frequent yawning. Confusion of head. Urine turbid, red, no sediment.—6th, 10 drops. Eructation frequent, inclination to yawn very great, dull frontal headache, ptyalism, pulse weak, appetite pretty good, digestion good. Afternoon, frequent eructation. Urine milky, turbid, with copious white flocculent sediment; two fluid stools.—7th, 10 drops on sugar. Slept ill; woke with headache and pressure in stomach. Soon great feeling of illness, frequent sour eructations, shuddering, frequent yawning, inclination to vomit, violent boring frontal pain, little appetite. After eating nausea and frequent vomiting. Urine, forenoon, clear as water; afternoon, fiery red, no sediment; two liquid stools.—8th and 9th. On account of the anorexia and indigestion took no medicine.—10th, 15 drops on sugar. Forenoon, sour eructions, rumbling in bowels, increased saliva, confusion of head. Appetite pretty good, digestion bad; pressure in stomach. Urine turbid, red, no sediment.—11th, 12 drops. Great feeling of illness; violent boring frontal pain, relieved by pressure, frequent sour eructation, weariness in limbs, increased saliva, appetite very bad, loathing of food, digestion very much disordered. Urine milky, turbid, with glittering skin and copious white flocculent sediment; two liquid stools; pulse weak and low.—12th Sleep restless; m., dull headache, frequent eructation with taste of yesterday's food. Little appetite. The symptoms gradually declined, and soon ceased completely. (*Ibid.*)

11. Dr. W. Huber. *a.* 5th Sept., m., 10 drops 6x tinct. agar. After 2 h. giddy, confusion of head, like slight intoxication, lasting almost all day, with unusual weariness of the body. Good n. On waking in m. pressive pain deep in r. frontal eminence, then painful pressive tension in tendons and ligaments of r. sacral and lumbar regions, extending to glutæus maximus, only felt when lying on r. side, always going off on lying on l. side.—6th, m., 15 drops. About 4 p.m., giddy confusion of head, especially when reading and

looking at light, with weariness of limbs and general ebullition of blood; pulse much excited, strong, quickened, 77; the pulsation was felt in almost all parts of body, especially in epigastrium. N. good. On waking, m., when lying on l. side, a pressive tensive pain in sacro-lumbar vertebræ, extending thence to l. hip, but went off at once on lying on r. side.—7th, 30 drops. At 2 p.m. a violent stitch in l. elbow with simultaneous shock through arm as from an electric shock. —8th, 40 drops. During the d. a gnawing biting here and there on various parts of skin.—9th, 50 drops. Severe coryza with confusion of head; white furred tongue, pappy taste, stitches in chin and elbows, with electric shocks in those parts, at same time frequent chilliness, and restless sleep. The coryza lasted till 15th Sept.—16th, m., 15 drops of 5x dil. Soon giddy confusion of head, scraping sensation in gullet, head confused all forenoon. 9 a.m., digging pressive pain in l. occipital and nuchal region, with weariness of lower limbs, and great drowsiness. When lying frequent muscular twitchings, now on the inner side of the l. knee, now on the upper arm, now on the back at r. scapula. 8 p.m., 20 drops. In 2 h. smarting prickling for 25 seconds on l. half of tongue; afterwards smarting burning on a small spot of the dorsal spine that went off in a few m., whereupon a similar sensation occurred in the tip of the tongue. N. good. At 6 a.m., in bed, colicky griping in abdomen, extending from l. ilium between navel and symphysis pubis through abdominal cavity to r. ilium, relieved by pressure, and lasting only a few m.—17th, m., 30 drops. At noon confusion of head and slight cool horripilation on the scalp of crown with the feeling as if the skin there were stretched more tightly. After dinner unusually long and profound sleep. After sleep subsultus tendinum on r. leg and r. foot, with jerking shocks there like electric shocks; afterwards smarting itching on l. sole near toes and on l. index. N. good. On waking, m., some griping in bowels.—18th, 7 a.m., 40 drops. 10 a.m., head as if intoxicated; weariness of legs in open air. 11 a.m., burning stitch in l. heel. Afternoon, transient shooting on crown of head. N. good.—19th, 50 drops. Soon dry feeling of lips, buccal cavity and fauces for ¼ h. After 11 a.m., on a small long spot of r. glutæus, a cooling sensation, lasting 20 seconds, like the sensation experienced when quicksilver is taken into the hand. After dinner long sleep. E., 20 drops of 4x dil. In ½ h. a slight cooling burning sensation in gullet and stomach. At 9.30 p.m., in bed, the same quicksilver sensation again in r. glutæus, along with bruised pain in sacrum, frequent twitching and subsultus of glutæi, and a prickling running on anterior border of l. index, toes, and heel. This prickling was very like what one feels on frostbitten limbs in change of weather. After ½ h., in the warm bed, a severe burning came in the feet as high as the ankles as though the blood in the vessels were hot, just like the sensation experienced in parts numbed by cold when exposed to sudden heat. This lasted ¼ h., went off, and recurred. At night restless sleep, many unremembered dreams. In the m. on waking, while still in bed, a cutting shooting pain in inner canthi of eyes, with some mucous secretion there. Just before getting up a violent stitch from the spinal marrow in the sacro-lumbar region

towards the r. glutæus.—20th, 7 a.m. 40 drops. Soon a slight pressive sensation on crown of head, and on looking out at the window into the light and again withdrawing a sudden giddy stupefaction in head as though he would lose consciousness, with roaring in l. ear. This lasted a few seconds, but a confusion of the head remained, which lasted all forenoon ; then there came on the r. lower jaw and surface of the back a short pain ; in the former as if fine, in the latter as if coarse splinters were pushed in between skin and flesh ; an itching, smarting, and burning, causing him to scratch now and again, in the skin, with transient stitches as from fine splinters in the point of the l. elbow. After dinner, on a small spot of the l. glutæus muscle, the above cold quicksilver feeling. At 4 p.m., on lying down with the head resting on r. arm, the body suddenly shuddered as with cold, the arm involuntarily drawn down to the trunk, and this was followed by several fine stitches on both elbows. N. quiet.—21st, m., 50 drops. Soon a short pain passing through the l. side of forehead, dryness of buccal cavity, with scrapy feeling in fauces, fine stitches above l. knee and anterior surface of thigh ; quivering of l. upper eyelid ; subsultus tendinum on r. index and on posterior border of r. hand. At 2 p.m., after dinner, smarting on posterior front of l. border of tongue and under tongue on same side as from horse-radish. 3 p.m., the well-known sensation on a spot of the r. natis and on the surface of the back under r. scapula. This cold feeling seemed to have its seat in the skin and muscular substance, and lasted several m. E., 20 drops of 3x dil. After ½ h., in bed, an acrid bitter taste at root of tongue ; repeated griping in l. hypogastrium with rumbling in bowels ; heat of body as if sweat would break out, with roaring in l. ear, frequent muscular twitching in l. calf, cramp-like pains now on the anterior aspect of thigh, above l. knee, now in muscles of l. leg, now in interior of l. ear. At midnight woke and felt a stitch on a dorsal vertebra. Remainder of night undisturbed. M., on rising, bruised pain in r. hip, going off on walking.—22nd, 10 a.m. 30 drops. Soon cramp-like pain for some seconds in region of spleen, followed by violent pricks as with coarse needles on the lower border of l. orbit at the exit of the lower orbital nerve, with frequent muscular twitchings on l. temple. After dinner a hard stool, causing sore pain at anus. 6 p.m., tickling itching in l. ear-lobe and external meatus, going off by boring in finger, cracking in both ears during empty swallowing ; e., in bed, twitching and serpentine subsultus in rectus abdominis muscle. N. quiet.—23rd, 5 a.m., 40 drops. After ½ h., while still in bed, jerking convulsive shocks, first of r. leg, then of lower jaw, lastly of l. arm, as from an electric shock, which appears to originate from the neighbouring joints of these organs ; thereafter frequent twitching of muscles of l. temporal and zygomatic regions. Stitches in skin of r. calf and r. side of neck. At 2 p.m., after dinner, another 50 drops. After ½ h. smarting stitches on tip of tongue, on point of chin, and on navel. At same time frequent subsultus tendinum in r. leg.—24th. No medicine. After dinner, on a small spot of r. hough, the well-known cold quicksilver feeling with frequent muscular subsultus in various parts of body. 3 a.m., woke and felt first internal uneasiness in all voluntary

muscles, followed by trembling of whole body, especially lower jaw, lastly there came on a choreic muscular action, that could not be arrested by the strongest effort of will, there was twitching of the hairy scalp, temporal muscles and cheek muscles of both sides, on which there often occurred a pain as if splinters were pushed in betwixt skin and flesh; the upper lip, lower lip, muscles of both shoulders and back, those of upper and lower extremities, and especially the l. deltoid muscle, the calf muscles, even the muscles of the soles, were similarly affected. The abdominal muscles were confusedly twitched. At same time jerking blows on several limbs, or violent shuddering of them, and frequent quick movements of single fingers. This lasted 2 h., during which the heart beat so violently that the sound of the heart's beats could be heard by the prover. The muscular twitchings were irregular, sometimes r., sometimes l., sometimes simultaneous, sometimes in quick alternation. He then fell asleep, but woke at 7.30 with fine pricks in the border of the lower jaw.—25th, 10 a.m., 15 drops, 2x dil. 2 p.m., the above cold feeling occurred on the l. natis and trochanter. 3 a.m., woke without cause; after waking there occurred a pricking as from splinters on inner surface of l. leg, close above ankle, then, after a few minutes, a similar pain on same place of r. leg. Soon afterwards again a trembling uneasiness in all the voluntary muscle apparatus, followed by choreic involuntary muscular action in various parts of the body. Fell asleep at 5 a.m.—26th, 10 a.m., 30 drops. During the day, nothing but involuntary jerking of some muscles. 8 p.m. 40 drops on going to bed. The effects were: digging shooting pains in r. heel and toe as from splinters; cramp-like pains on inner side of r. calf and l. flank above hip, with frequent twitchings of muscles, especially on nates. N. good. M., after waking, while still in bed, the same thing occurs as last night, only in addition frequent electric shocks of single limbs and jerking up of single fingers. Shortly before getting up a digging pressive pain on l. frontal eminence, with roaring in l. ear. These went off after 3—4 m.—27th, 15 drops, 1_2 dil. After 1 h. a burning cooling feeling along œsophagus to stomach as after taking peppermint; eroding itching, inviting scratching, in the hairy scalp of forehead, and in several parts of skin; at the same time a smarting sensation in Schneiderian membrane, with frequent violent sneezing and muscular jerking in l. iliac region. After dinner transient pricking in tip of r. thumb as from fine splinters, and a short but violent pain on r. dorsal surface below scapula as from coarse penetrating splinters, with confusion of head and frequent twitching of upper abdominal muscles. After 9 p.m., in bed, a burning sensation of tip of tongue, as if it had been dipped in pepper, with a cramp-like pain in l. side of abdomen above hip, lasting more than ½ h., relieved by discharge of flatus. Thereafter the above-mentioned cold quicksilver feeling on a spot about 1 in. long and some lines broad on the posterior aspect of r. thigh (in sciatic nerve?), followed by a short cramp-like pain in r. calf and later also in l. deltoid muscle. N. good. On waking at 4.30 a.m., a smarting sensation in tip of tongue as from pepper, followed by a tickling itching spreading from the faucial orifice of r. Eustachian tube to interior of ear, lasting 8 to 10 seconds, and alter-

nating with loud ringing in l. ear. In addition, every time he attempted to swallow a creaking in both ears as from a wooden screw; intermittent muscular subsultus at l. scapula and l. deltoid muscle, with a violent convulsive shock of whole r. side of body proceeding from spinal column.—28th, 10 a.m., 20 drops. After ½ h. muscular jerks in l. forehead, lips, l. scapula, l. iliac region, r. knee, with itching, like electric pricks, on hairy scalp and now and then on skin. Noon, transient digging pain in l. occiput and l. forehead. 6 p.m., fine penetrating very painful pricking in middle of r. cheek, as if a splinter were stuck through the skin into the muscles, lasting 6 to 10 m. 7 p.m., 25 drops. At 10 p.m., in bed, the cold quicksilver feeling came in both nates simultaneously, and at same time itching pricking in crown of head, and regular muscular twitching in l. forehead and temple. N. good. M., in bed, a short boring pain near r. os calcis in tendo Achillis, muscular twitching in both nates; quick movements of single fingers and a horrible shuddering of whole body proceeding from a lower dorsal vertebra.—29th, 11 a.m. 40 drops. At 11.30 the well-known cold feeling in r. natis, not continuous, but at regular intervals, synchronous with each pulse, as though each time it were touched with an icy cold body; soon afterwards violent pricking in l. cheek where the infra-orbital nerve joins the pes anserinus, as if splinters were stuck in. After dinner, during the siesta, a violent shock of the l. arm, followed by undulating jerking of the upper abdominal muscles, and a scraping irritation in trachea, causing dry cough. At 5 p.m., on going from open air into a dark passage he was attacked by momentary nausea, with vertigo, as though he should lose consciousness. At 2 a.m. became wide awake, and immediately had frequent subsultus of muscles and tendons, with a violent convulsive shock of whole lower part of body, originating from an upper lumbar vertebra. He took no more of the drug after this. 30th.—A pricking pain as from splinters in the middle of upper lip, close to nose, and a similar pain in r. heel.—1st and 2nd Oct., m., in bed, frequent muscular twitching, especially in both pectoral muscles, in abdominal muscles, and in the pyramidal muscles at the pubic arch, accompanied by such a violent shock of the head, proceeding from the atlas joint, that he bit his tongue involuntarily.—From 2nd to 5th the same symptoms.—In the n. between 10th and 11th he woke with unusually frequent muscular movements, during which the external muscles of the larynx were engaged, at same time there came between the dorsal and lumbar vertebræ a pricking pain as from splinters; this was followed by the well-known cold feeling in the same spot, as if the spinal cord were touched there with a very cold body; some m. later the same pricking sensation in the cervical vertebra.—12th., m., in bed, the well-known cold feeling in the r. axilla and l. inner ankle.—From 13th to 15th similar symptoms.—18th. An icy cold feeling close to coccyx repeatedly. —19th. Frequent, as it were electric, pricks in the skin, with shocks in several limbs and frequent muscular jerkings.—From 20th to 21st. Familiar symptoms.—22nd, forenoon, while walking in open air a violent shoot like lightning through the cerebrum, with feeling as though he would lose consciousness. Noon, a pricking pain in l.

sole, as from splinters. Afternoon, several jerking beats of the heart—*convulsio cordis*. E., in bed, pressive tensive pain in occipito-nuchal region at both sides of the atlas, with electric pricks in skin on anterior aspect of r. thigh. Hardly had he fallen asleep when he was awoke by a horrible shock in the interior of chest and throat with a piercing cry. This explosion seemed to begin in the diaphragm, and took its course in the back of the thoracic cavity, upwards along the œsophagus or trachea (nervus vagus?), impinged with great force on the larynx, causing the above noise. The noise itself was a prolonged one, and not interrupted, as *e.g.* in hiccup. About ¼ h. after this there came on restlessness, a trembling shake, and lastly a positive convulsive condition of the lower jaw. This lasted but a few m., but recurred several times in weaker degree. Later a slight pain in l. molars. —23rd. During the day frequent electric pricks in l. zygoma, and repeated muscular twitchings, especially in l. cheek.—24th, e., in bed: in addition to several familiar symptoms pricking as from splinters in atlas-joint, crepitation in the lumbar and cervical vertebræ, and coldness of feet up to ankles. From this time the action of the drug was only in mere traces. 1st Nov.—Recrudescence of the effects: the noteworthy symptoms were—frequent clapping jerking in interior of r. tympanic cavity; jerking of tensor tympani, with a sound such as is made by a metallic valve covered with leather, when it is set in motion.

b. 15th Nov. Began another series of provings with tincture prepared with fresh fungi. At 11 a.m. 1 drop in water. In 5 m. sudden vertigo, as though he would fall: it lasted only 5 seconds, and was followed by electric pricks in r. knee. After dinner, before the siesta, roaring in l. ear, frequent muscular twitching in l. natis and a convulsive shock in l. shoulder. The sleep was unusually long and profound. After sleep a chilly feeling all over body, especially in both feet. 4 p.m., smarting pricking in roots of ciliæ of l. upper eyelid. E., prostration and weariness. 9 p.m., in bed, undulating muscular jerking in l. forearm, then in l. thigh. After 1 h. heat spread gradually all over the body, until it became intense; the lower extremities burned to such a degree that he must often throw the clothes off them. The blood seemed to flow quite hot through the vessels, the circulation was feverishly excited, the pulse strong, hard and quick. 11 p.m., burning thirst. Accompanying these febrile symptoms were: cutting sore pain in upper part of l. nostril, felt at every inspiration, but not during nasal expiration, at same time stuffed and coryza feeling, with discharge of watery fluid from both nostrils, frequent sneezing and yawning, frequent slight hawking up of small masses of mucus from fauces and posterior nares, constant roaring in l. ear with creaking in both ears during empty swallowing, acrid, smarting taste on l. half of tongue, sore pain in tip of tongue, which seemed to be occupied by a vesicle, a not disagreeable burning cooling sensation from fauces through œsophagus to stomach as from peppermint or horse-radish, electric pricks in skin of anterior aspect of r. thigh, and violent convulsive shock of l. shoulder. This febrile excitement lasted till midnight, after which the heat gradually subsided, and he slept and dreamt much that

was not remembered. The urine passed at night was clear, sherry-coloured, and of normal quantity. Morning, a transient, rather severe, shooting deep in r. hypochondrium, coryza gone.—16th. All foreneon, confused head, boiling roaring in l. ear. Exhaustion of body, white furred tongue, slimy, sticky, taste. Afternoon pretty well. 6 p.m., 2 drops. Soon transient stupefaction of head. N. good. M. in bed, painful tension and pressure in l. hip and lumbar region, but only when lying on that side, going off when lying on r. side. Twitching jerking in hairy scalp above l. ear, close to concha, and sometimes in concha itself, muscular jerking on l. side of nape, l. side of neck, l. forearm, near joint of elbow, with violent electric shock of lower jaw coming up from a lumbar vertebra.—17th, 9 a.m., 3 drops. Forenoon, stupefaction of head. Afternoon, when inspiring air by l. nostril a painful feeling high up, as if the mucous membrane were excoriated there. 6 p.m. In all l. side of head, constant dull pain, which after 1 h. increased to violent digging, at same time roaring in l. ear, rumbling in l. side of abdominal cavity, flatulent distension of abdomen, slight griping between navel and r. hypochonder, discharge of much flatus smelling of tinct. of agar.; prostration and weakness. In spite of the headache, fell asleep, but woke about midnight with violent digging pain in l. temple, relieved by pressure of hand, recurring when pressure was removed. After a while headache went off and he fell asleep. On waking at 5 a.m. itching in l. meatus aud. ext., with a prick in interior of ear as with an icy-cold needle; pricking pains in dorsal vertebræ, r. heel, toes of both feet, as from splinters stuck in; muscular twitching close to l. ear, l. elbow, l. intercostal muscles, both glutæi, and pectoralis, with jerking shocks coming in impulses, now in l. hip now in r. hand, proceeding from the corresponding joint. After getting up felt well all except bruised feeling in nape and occiput.—18th, 8 a.m., 4 drops. Forenoon, confused head, smarting erosion on l. side of hairy scalp, smarting pricks on border of r. upper eyelid, bruised feeling in r. occiput, great sensitiveness to cold, especially in hands and feet, with pale, ill-looking countenance. After dinner frequent twitching clapping or fluttering in tympanic cavity of r. ear. Jerking of tensor tympani, and twitching in l. abdominal muscles, and the well-known pricking as from splinters pushed in, now l. meatus aud. ext., l. cheek, r. upper lip, point of chin, now in dorsal vertebræ, l. pectoralis muscle near nipple, navel and various parts of skin; at same time a pressive pain in r. side of fauces. Simultaneously or alternately with them sometimes there was frequent muscular jumping in ears, temple, face, upper lip, throat, chest, sacro-lumbar region, abdominal walls, extremities, with jerking movement of one or other thumb and single fingers. N. good. M., after waking, aching tensive pain in tendons of l. upper arm, near bend of elbow, lasting several m.—19th, 8 a.m., 10 drops. Noon, confusion of head, after dinner a short intimation of a dull digging pain in l. temple, with the familiar cold feeling in r. natis. E., before going to bed, erosive itching in hairy scalp of occiput causing him to scratch, with frequent involuntary jerking of muscles of lower jaw. E., in bed, cramp-like pain in muscles of l. upper arm below deltoid, lasting some m., thereafter a similar

pain from os ilii downwards towards the muscles of anterior aspect of r. thigh, with painful twitching pricks in anterior of l. ear, at same time restlessness and considerable trembling of muscles of l. upper arm and thigh, with slight jerky shocks of those limbs, and frequent muscular jumping in various parts. N. good. M., after waking, a sore shooting pain in inner canthus and beneath upper lid of r. eye, with a short cramp-like pain in the muscles of the anterior aspect of r. thigh, and a pricking pain as from splinters stuck in r. heel and toes. —20th, 8 a.m., 12 drops. Forenoon, transient pressive pain in l. forehead with eroding smarting now and again in skin. After dinner restlessness in lower jaw and lips, with fine trembling movement and frequent twitching on and in r. concha, and twitching jerks in interior of r. ear. 8 p.m. A sudden lightning-like pricking in r. cheek, at exit of infra-orbital nerve, close to orbital border, as from sharp splinters; immediately afterwards a convulsive shock of the lower jaw, making him bite his tongue. N. good. M., after waking eroding prick in hairy scalp of l. parietal region, and transient pricking as from splinters in r. temporal region near eye, followed by muscular jumping in various parts. Both inner canthi sealed up with mucus. —21st, 8 a.m., 15 drops. Soon a sore pricking pain in l. inner canthus. Forenoon, when walking in open air a digging pain from l. forehead along parietal region through the whole cerebral hemisphere to the occiput, followed by pressive sensation in crown, with constant accumulation of water in mouth, causing him to spit frequently. After dinner, frequent twitching shooting deep in l. side of cerebrum, and frequent pricks as from splinters stuck in, sometimes in r. pectoral muscle, in r. true and false ribs, sometimes in l. index. E., in bed, sudden violent pricking as from splinters in l. cheek near eye, lasting some seconds; thereafter similar pains in l. side of back, beneath scapula, in l. hypogastrium and r. toes, with frequent muscular jumping in various parts. N. good. M., in bed, pressive digging pain in r. half of occiput, with simultaneous splinter-pricks in middle of r. cheek and lowest ribs, with frequent twitching of various muscles.—22nd, 9 a.m., 20 drops. Forenoon, bruised pain in l. nape and shoulder, and transient pressive pain in tendons of l. upper arm near bend of elbow, lasting some m. After dinner cold feeling in point of r. elbow, as if it had on it a piece of ice; at same time the familiar cold feeling in parts of both nates, and an icy coldness of both feet up to ankles, especially in big toes. All this in the room. 5 p.m. On raising l. arm a violent dislocation pain in l. deltoid, on attempting to raise arm felt as if thousands of splinters were in the muscle. This lasted 10 m. Afterwards splinter-pricks in r. intercostal muscles below nipple. N. good. As only well-known symptoms occurred the proving was stopped.—23rd, 9 a.m., a transient icy cold feeling was experienced in a small spot on the l. side of thorax.—24th, e., after lying down a suden horrible pain as from thousands of splinters in the middle of the r. forearm, accompanied by a momentary feeling as if he would lose consciousness, when at rest. Thereafter prickings as with splinters for a few m. in r. cheek, just below the lower orbital border, that changed into a digging pain as if in the bone.—25th. An icy cold

feeling above the proximal joint of the r. middle finger.—26th. Splinter-pricks on back of r. hand near wrist, with frequent twitching of various muscles.—27th. Frequent pricks as from splinters in dorsal and lumbar vertebræ.—28th. Sensation in lumbar portion of spinal canal as though the cord or its membranes were touched there with a piece of ice, lasting 20 to 25 seconds.—29th. Chirping, crepitating and creaking in spinal column.—30th. At night, splinter-pricks in l. sublingual salivary gland, followed by great flow of saliva into mouth. Various symptoms of agaricus action were experienced by prover up to 11th Feb. of following year. They were sometimes mere traces, at other times were as violent as ever. They were not only the well-known symptoms, but several new phenomena occurred. Thus when lying still in bed there was often a peculiar cracking and creaking in the osseous parts of the nose, as though the spongy nasal bones were pressed or forced against one another. For many successive d. at the same h. in the m. in bed there occurred a constant chirping deep in the occipito-nuchal region, as if a cricket were in the cervical portion of the spinal canal, lasting 4 to 10 m. One n. his whole household burst into his bedroom to inquire the meaning of a horrible scream he had emitted, but of which he was entirely unconscious. (*Ibid.*)

12. Vincenz Kletzinsky, medical student, æt. 21, robust, full-blooded, sanguine temperament. Healthy, except tendency to slight attacks of diarrhœa.—1st trial, 21st Oct., 7 a.m., 5 drops tinct. agar. in water. 9.30 a.m. Flying shoots in occiput, violent l. semilateral headache. From 10.30 a.m. to 5 p.m., involuntary twitching of facial muscles on r. zygoma, weakness of vision, heat and pressure inwards in eyes. From 2 to 5 p.m., confused tendency to fall backwards.—22nd. 8 drops. At 8 a.m., slight painless vomiting smelling of alcohol. —23rd. 10 drops. Drawing sensation in knees as in fever, from 11 a.m. to 7 p.m.; the smoke of a cigar did not smell in l. nostril, but very strongly in r. The hemicrania, twitching in facial muscles, weakness of sight, and tendency to fall backwards recurred. Frequent sneezing. Sleep profound, dreamless.—2nd trial, 18th Jan., 7 a.m., 5 drops tinct. in water. 10.30, shootings across occiput, recurring every 10 m., sometimes more, sometimes less violent till 2 p.m. Complete anorexia. 3 p.m. till late in e., vertigo with tendency to fall backwards. From noon till 5 p.m. a painless feeling as from jumping of the tendons of the r. upper arm; similar twitching in r. zygoma. Late at n. anxious palpitation of heart, with febrile thirst. Sleep restless.—19th. Awoke in m. with bitter mouth, and drawing pain in knees. This and muscular twitching in face lasted all d. Noon, good appetite. In the e. the palpitation of the heart returned, but without the anxious feeling. N., sleep quiet. From 20th to 25th, no med; no symptoms. —26th, 7 a.m., 10 drops. From 9.30 a.m. to 1 p.m., repeated shoots through the occiput, vertigo with tendency to fall backwards, sensation of jumping of tendons in upper arm, and twitching in r. zygoma. No appetite. Bitter taste lasting till 28th. Took a moderate meal without appetite, and 4 h. afterwards had three liquid stools. 8.30 p.m., attack of violent palpitation of heart, with anxiety that caused sweat to break out, terminating in a restless half slumber, with dreams about

walking up and down the room and reading; it was not till after midnight that his sleep became deep. While in the m. of the 27th with dry palate, bitter taste, cloudy vision, and [illegible] movements till noon, when these symptoms went off gradually, and gave place to moderate appetite, though always with bad taste in mouth.—3rd trial, 10th Feb., 7 a.m., 5 drops. Soothing l. semi-lateral headache began at 9.30, and lasted till [illegible] p.m., when it gave place to flying shoots recurring every 10 m. Afternoon, tendency to fall backward. 11 a.m. When urinating, burning in urethra. Anorexia with loathing of most meat. E., visual vertigo and weak sight and diplopia. Drawing pain in knees, going off on moving, worse on lying down. N., late, short, restless sleep. On awaking, m., tired, out of sorts as after great fatigue.—12th. General feeling and appetite still considerably deranged in forenoon. 2 p.m., 10 drops. The semilateral shooting headache, the tendency to fall backwards, the scalding when urinating, the drawing pain in knees recurred in an increased degree. 4 p.m., face equally and highly red, burning hot, almost swollen, with tiresome tension of cheeks. Roaring in ears, sometimes r. sometimes l. Complete disinclination to work of any kind. On going to bed, about 6 p.m., a severe rigor came on while undressing; when wrapped up in bed, a desire to laugh seized him, the cause of which seemed to be a mixture of well- and ill-feeling. The urine passed was burning hot, and dark yellow. The heat of face, which was accompanied by intolerable anxiety, yielded four or five times to the sweat it occasioned, which he promoted by covering up the head and breathing quickly, whereupon a transient sensation of very agreeable coolness streamed through him, which ceased as soon as he uncovered his head, and the sweat ceased, and the previous heat and anxiety recurred, until at length, at 8 p.m., a restless, dreamful sleep occurred, out of which he woke, at 7 a.m., with a feeling as after a severe illness, with confused head, bitter taste, anorexia and pain in knees. He remained in bed as he felt so ill, and in the course of the d. yesterday's symptoms recurred, though less severely, and the e. exacerbation was less. An undisturbed dreamless sleep restored him so far that he could leave his bed next d. by 10 a.m., but vertigo and weakness were still present. The scalding during micturition lasted three days longer. (*Ibid.*)

13. Franz Kraus, medical student, æt. 23, sanguineous-choleric temperament, of robust frame, and, with the exception of an ague never seriously ill.—30th Oct., m., took some drops of tinct. agar. in water. 11 a.m, slight transient heat in head, combined with mental fatigue as after long-continued intellectual labour, at same time slight pricks in l. upper eyelid, obtuse pains in eyeball similar to the pain caused by pressing on the eyeball with the hand. Frequent call to urinate, the quantity of urine passed much greater than usual. This last symptom lasted all d., as also the occasional recurrence of heat. —31st. Same dose. Same symptoms, with the exception of the eye pains; call to urinate again present, in addition, shooting pain in almost all the joints, especially well marked in l. knee joint and head-joint; the r. knee-joint was very painful on going upstairs. (*Ibid.*)

14. J. Landesmann took from 21st to 27th July daily in the m.

velve globules moistened with the 300th dil. without result. From 8th July to 4th Aug., daily 10 drops of the 3rd dil. On the 29th July and 2nd and 4th Aug. he had nocturnal emissions. From 5th to 8th Aug. daily 30 drops of 1_x dil. without result.—9th and 10th, 5 drops tinct. On m. of 10th on waking, cough with loose expectoration.—11th, 12th, 13th, 10 drops tinct. On afternoon of 11th, sore pain on outer half of back of r. hand as though it had been slightly burnt, increased by touch. This symptom was also present on 12th. On that day at noon, a sudden violent stitch in hepatic region.—14th, 15 drops.—15th, 20 drops.—16th, 25 drops. No symptoms.—17th, 30 drops. Forenoon, several times short dry cough.—18th, 35 drops. Afternoon, unusual thirst.—19th, 40 drops. Nocturnal emissions. 20th, 45 drops.—21st. No med. No symptoms. 22nd, 50 drops. M., the chin studded with white, closely-set vesicles the size of a millet-seed, which go off the next d. when shaving.—23rd, 60 drops. Nocturnal emission.—24th, 70 drops. Nocturnal emission.—25th, 80 drops.—26th, 90 drops.—27th, 100 drops.—28th, 110 drops. No symptoms.—29th, 120 drops. Many dreams at n., suffocative anxiety in dreams. Feeling as if nose were quite stopped. An emission.—30th, 130 drops.—31st, 140 drops.—Sept. 1st, 150 drops.—2nd, 180 drops. No effects.—3rd. 300 drops. Forenoon, confusion of head. 2 p.m. When lying noise in r. ear, like the intermittent noise of a locomotive, going off on rising up, recurring on lying down. E., on lying down, the same noise, it changed subsequently into the sound of a nail being knocked into a board at some distance. This lasted till he went to sleep, but both delusions of hearing occurred regularly by d. as well as by n. when lying, often alternating with one another, and lasting till 9th Sept., but the last 3 d. the only sound heard was that of a nail being driven in, and it always became weaker.—9th. The skin again studded with small vesicles, which only went off after several d.—20th. Similar vesicles appeared near the r. corner of the mouth, and lasted till 24th.—25th. One large and several small vesicles scattered over forehead.—27th. Violent coryza came on, probably the consequence of a chill; the acridity of the discharge caused an eruption about nose and upper lip. —30th. Repeated violent tearing in l. thumb. After 17th Oct., there appeared here and there on forehead small vesicles, and there was occasional tearing in the fingers. The urine during most of the time of the proving unusually lemon-coloured. (*Ibid.*)

15. Dr. Lazar, æt. 29, blond, sanguine temperament. Had an inflammatory chest affection a year ago, since when suffers from palpitation; otherwise healthy.—14th Sept. An hour before breakfast took 200 drops agar. 2x, watery dilution. 8 a.m., dyspnœa, as if chest was too full, and after every deep breath—which he was obliged to take frequently—a squeezing and shooting pain in scrob. cordis. 10 a.m., above symptoms in less degree; a paralytic feeling in l. hand and tension in r. forearm; at same time stupefying headache and disinclination for mental work. Noon, less appetite than usual, pain in scrob. cordis gone. 2 p.m., very violent palpitation of heart, and always 5 m. after the commencement of the palpitation renewed and

more violent paralytic pain in l. hand and arm. 5 p.m., heat in face and extraordinary redness of both cheeks, especially the l. 6 p.m., after a bath in the river that refreshed him much, felt much better. 8 p.m., felt well; before going to sleep severe palpitation. Slept well.—15th. Early, slight palpitation and weariness of all the limbs, especially l. arm. 6.30 a.m., 200 drops agar. 2x. 11 a.m., violent palpitation for 5 m. Appetite for dinner. 2 p.m., pain in r. temple more stupefying than throbbing, at same time weariness in limbs and weakness of mental powers. 4 p.m., headache continues, at same time drawing pains in l. arm, which extend to the middle finger. 6 p.m., considerable malaise, frequent attacks of faintness, excessively violent tearing in both hands, then inclination to vomit and veiled sight. 8 p.m., symptoms abated. Frequent eructations with taste of rotten eggs, as if the stomach were disordered.—16th. After a good night's rest profuse sweat all over the body. 6 a.m., palpitation for several minutes. Till noon, with the exception of occasional pressive and burning pain in cardiac region, nothing particular. From 2 p.m., recurrence of paralytic pain in l. arm till 6 p.m. 6 p.m., attacks of faintness, with inclination to vomit, veiled vision, pressure in brain like lead on cranial bones extending down to nose, flushes of heat on cheeks and frequent yawning. These symptoms last in this severity till 7 p.m., then get weaker. 8 p.m., they are quite gone, and only the paralytic feeling in l. arm remains. Loathing of food, sourish, disagreeable eructation and stupefaction of head.—17th. Slept well. All forenoon felt unwell, slight drawing headache. Noon, no appetite. 3 p.m., pressure at heart and depression of spirits, at same time dull frontal headache. From 4 p.m. till e., constant pressure at heart, probably owing to vexation, with nausea and empty eructation.—18th. Slept well, feels quite well. 300 drops agar. 2_1. Felt nothing but crampy pain in r. thumb, frequently recurring and lasting some m.—19th, 5 p.m., violent palpitation and very frequent diarrhœic stools.—20th. Towards e. and during the n. tension and drawing pain in both legs and feet.—21st. Much empty eructation almost all d., once like rotten eggs, no appetite. More than ten loose stools with griping and discharge of much flatus. During his proving of agar. the stools always continued diarrhœic, which was quite contrary to his usual state. (*Ibid.*)

16. Bruno Linck, M.D., æt. 36, robust constitution, choleric temperament. Health good, but with a tendency to bronchial catarrh, and after a chill disposed to get colic and diarrhœa.

a. 1st proving: 14th July, m., 10 drops tinct., a second dose at 10 a.m. Soon slight eructation, which, however, does not come up, but stops in the lower part of the œsophagus. After 1 h. scrapy burning in fauces, eructation of tasteless air. A feeling as if eructation would come like a pressing asunder of the orifice of the stomach, drawing tearing in l. groin and anterior aspect of thigh down to its middle. Sore pain at lower angle of l. scapula as if excoriated. Tearing intermitting pain in r. anterior thoracic wall. Drawing tearing intermittently at the outer side of l. thigh, above knee to the hough. Comfortable mental state, with mild, accommodating, but serious

disposition, fine tearing on ulnar side of l. forearm. In bed at n., perspiration, especially on lower limbs, with sensation of a cool air blowing on them.—15th. No med. In l. side of abdomen a pressive very disagreeable pain, causing inclination to vomit. E. in bed, sweat on inner side of lower extremities. On r. os ilii externally under glutæi rheumatic drawing pains, a pain in hip, drawing pressive headache in l. parietal protuberance, affecting eye. Mental indolence.—16th. No med. Tearing in l. little finger down from proximal joint.

b. 2nd proving: 20th Sept., e., at bedtime, 12 drops tinct. agar. After being ¼ h. in bed, a sudden, painless drawing in r. lower extremity, so that he raised himself up and looked around him. Shortly afterwards, painful twitches like electric shocks in r. elbow and wrist.—21st, noon, feeling of nausea, with anxiety in chest, quickened and audible respiration, mental depression; call to stool. This lasted till the midday meal, by which it was removed. 2 p.m., 15 drops. No noticeable effect.—24th, 25 drops, in afternoon. Sleepy very early. Easily irritated and put out of temper. E., tearing pain in posterior muscular parts of upper arm, lasting some time, then ceasing and succeeded by sore pain at insertion of l. deltoid muscle, alternating with fine tearing in l. shoulder-joint posteriorly, which recurred several times, always more severely. Slept well.—25th, 11 a.m., 25 drops of 1st dil. An h. after dinner, fine tearing pain in l. forearm intermittently recurring, running towards the hand as if betwixt radius and ulna, with a fixed pain on back of wrist, at same time a kind of numb feeling in skin of forearm, especially of back of hand. All afternoon, fine painless tearing, especially on radial aspect of l. forearm. E., cutting itching in rectum, just above anus, which compelled him to draw up the anus, but this did not relieve him; on the contrary, it was more relieved by voluntary pressing out; it was like the feeling attending acrid diarrhœa, it lasted half an hour. Thereafter fine tearing in r. knee. Occasional anxious uneasy feeling in chest, as though he anticipated something extraordinary happening. Slept well.—26th. After breakfast, painful pressure on a small spot in l. temple. Traces of tearing in l. upper maxillary region of face. Repeated tearing in l. forearm, also in r. thigh above knee on outer side simultaneously with the facial pain. Slept well.—27th, 100 drops 1st dil. Almost all d. repeated attacks of fine tearing pain on l. side of head, above and behind ear, as if proceeding from a small painful spot, which however was not painful to touch. The same fine tearing in r. upper arm posteriorly sometimes accompanied by similar pain in l. forearm. The tearing is worst in l. clavicle. No pain anywhere when touched. After dinner, profound sleep from which he awoke with painfulness and lameness of the limbs, which soon went off. E., tearing in l. side of chest superficially.—28th. In addition to the painful feelings of yesterday, there was a tearing pain with feeling of paralytic numbness in l. leg.—29th, e., great weakness of limbs so that he staggered when walking; great fatigue of legs when going upstairs. For a week after the proving he observed the above-described sensations, and on waking in morning heat of head and face, with a sensation of puffiness of the face, especially of cheeks.

c. 3rd morning, 7th Oct., m., 15 drops, and afternoon 30 drops tinct. After some h. pinching in bowels, urging to stool with cutting pain in anus, removed by a firm motion. Shortly afterwards painful dryness of anus, with desire to draw it in. In the course of the d. a penetrating, fine, tearing pain first in r. parietal bone above ear, with a feeling of sore place on bone, very painful to touch, lasting a long time; later the same pain occurred on the front of the r. leg, close to ankle-joint, and at the same time in the middle of the back of hand. These pains were only momentary, but very acute, and always combined with a more permanent sore spot, which, however, could not be found by touch.—5th, m., head confused, tiresome heat in face, especially cheeks. The sleep stupefying, though often interrupted by waking and toning about. Chest oppressed with mucus requiring to be hawked up and necessitating deep inspiration, which caused the sensation as if something was displaced. M., 40 drops. In 1 h. much flatus discharged, feeling of moisture at anus, painful rumbling in bowels with call to stool, and at same time sensation of the anus being closed; pressive pain in sacrum when leaning back in chair. The feeling of moisture became stronger, and a soft stool ensued, which was followed by soreness in rectum, and desire to draw up anus. A painful momentary formication in glans penis apparently in urethra, tearing in radial aspect of l. forearm, also in l. hip-bone. Acute shoots in l. meatus auditorius, followed by twitching movement in l. canthus of eye. Belching eructation up as high as larynx; itching in various spots of upper part of face. Occasional scraping in throat as if behind root of tongue. Painful pressure on a small spot on l. side of lower third of sternum. Painful tearing in a line 2 inches long, just above navel. Transient itching on several spots of the body. Occasional imperfect eructation; soon afterwards, feeling of coldness in occiput combined with precordial anxiety, slight nausea. At same time painful tearing in upper half of radial side of l. forearm. After rising from seat the anxiety in chest increased, respiration was quickened, and the r. hand was unsteady when writing. Repeated painless strong pulsation in an artery, apparently as big as a quill-pen, just above olecranon of r. arm. After writing but little, there soon occurred gone-asleep feeling and formication in r. fourth and fifth fingers, back of hand and ulnar side of hand, pain in l. temple, then in r., then in l. lower jaw, like a tooth beginning to ache. Very scanty urinary secretion all d. Felt quite well when driving out; on returning home in e., the tearing pain in limbs recurred occasionally, and much flatus was discharged with a hissing noise.—9th. Took by mistake ipec. in place of agar. Symptoms similar to those previously experienced occurred, together with some others which might be owing to the ipec.—10th, 9 a.m., 35 drops. Slight indications of rheumatic pains. Afternoon, painful pressure under upper eyelids, especially when eyes are closed, like great fatigue of eyes after long straining by bright light. Afterwards, during the d., occasional sensation as if headache would come on, which it did in the evening, and consisted of a disagreeable pressive, and sometimes drawing pain in small spots of forehead and temples, lasting an h., and accompanied by the pain in the eyelids. After-

noon, lumpy stool, preceded by moist feeling at anus. E., cutting in abdomen, also tearing pain in second joint of l. index. On going to bed, feeling of disagreeable coolness in abdomen. Slept well.—11th. Painful cutting in abdomen, as if colic were coming on, with urging to stool, and feeling as if diarrhœa were about to ensue. After discharge of flatus a firm stool, with scalding in urethra when urinating. 11 a.m., 40 drops. Satiety ensued before hunger was satisfied, and there was pressure in stomach. After cutting in abdomen a lumpy stool. Slight gone-asleep feeling in extremities; the hand went to sleep when writing. An itching place on the hairy scalp that had troubled him for months, and a patch of psoriasis at the boundary of the hair on forehead, disappeared during the proving, but a nasal catarrh that affected him every m. on rising was not altered. 5 p.m., 50 drops. Immediately, sensation in rectum and anus as if diarrhœa were coming on, but it did not. Burning in urethra on urinating, urine normal. Acute pain in splenic region. Soon afterwards soreness in tip of tongue increased by touch, lasting all e. Dislocation pain in l. hip-joint for ½ h. Falling asleep of l. hand while leading a child during a walk. E., pressing pain near r. nipple. At same time a superficial lightning-like shock in l. side of head. Throbbing pain in r. instep along dorsum of foot.—12th, 9 a.m., 45 drops, and after noon meal 70 drops. Till 3 p.m. very slight pressure in stomach. At 3 p.m., painful and hurried calls to stool, which was firm and passed with effort. Then tearing pain and tension between l. index and thumb, and in upper arm. Feeling of hurry and anxiety in chest, causing quick and deep breathing, as though he expected something extraordinary, with desire to sigh. Painful pressure in eyelids, especially r., with great drowsiness. Recurrence of pain in spleen. Scrapy feeling in throat frequently. Sensation of electric twitchings in extremities. When walking painful pressure in r. side of chest near nipple, with relief by deep breathing. Later anxious oppression of chest. Paralytic feeling in l. upper arm, nausea and confusion of head.—13th, 80 drops Noon, pains in lower extremities, especially in r. hip-joint and outer side of r. leg, like fatigue pains, accompanied by tearing all afternoon and e., with feeling of unsteadiness and fatigue in legs. Dislocation pain in hip-joints. Also shooting pressive pains in chest and back, particularly below scapulæ and on the corresponding anterior part of chest, necessitating deep breathing, which relieved. A chap in middle of lower lip causing burning pain all afternoon and e. 9 p.m., painful tension transversely across lumbar region to sides of abdomen, where it was dislocation pain in abdominal muscles; produced by stooping. Unsteadiness of legs, the knees doubled up under him. Gnawing, shooting pain on back, under scapulæ. Slept well, felt stupefied on waking.—14th, 8 a.m., tearing on outer side of r. leg above ankle-joint; pricks as with many needles on l. frontal protuberance. When sitting, pressive bruised pains in sacrum. Afternoon, great retraction of testicles towards inguinal ring. After moderate supper, very tiresome fulness and distension of belly, with oppression of chest. —15th. Restless sleep with much tossing about, early waking with quickened respiration and catarrhal symptoms and oppression of chest. Chap in lip still painful. The chief symptoms were the pains in the

lower extremities, especially hip-joint, and the chest and back pains.—16th. Extremely violent pain in lower extremities, especially in l. hip under glutæi muscles, unaffected by touch, pressure, or walking, aggravated by stooping low and changing the position of the affected parts. Very acute, shooting, tearing pains on small spots of thorax anteriorly and posteriorly, *e.g.* on l. side, at the uppermost false rib, under the scapulæ, &c., unaffected by breathing. Pains in both sides of sacrum in e., rendering walking uncomfortable, at same time tearing pain in r. ear.—17th. Slight manifestations of the hip pain; all day long a feeling in the head as if a violent headache would come on. The pain went off on directing attention to it, but returned when he was not thinking of it.—18th. Still uncomfortable feeling in sacral and lumbar regions. When walking, suddenly a painful contractive spasmodic pain in r. calf as if something there were drawn together, worst when raising up and setting down the foot, causing the knee to bend beneath him and making him lame. A dislocation pain in neck, worst when turning towards l., so that the head remained stuck in that position, and could not be turned back. The proving was now left off, but the medicinal symptoms continued to molest him for weeks.

d. 4th proving: 1st Dec., m., 6 grs. of a trituration of equal parts of agar. and milk sugar. In 1½ h. nausea and accelerated respiration, followed by feeling of uneasiness in belly, with sensation in anus as if diarrhœa were about to ensue. Noon, 15 grs. After dinner, great heat and redness of face, unusual symptoms. 6 p.m. Sudden call to stool, which soon goes off. Great salivary secretion. When walking, such weakness of knees that they bent beneath him, at same time feeling of general illness, nausea, sad disposition.—2nd. No stool yesterday—most unusual; slept well, coughing up of clear lumps of mucus. M., 5 grs. Hard stool passed with effort in the e. 15 grs. at bedtime.—3rd. No med. No symptoms.—4th, m., 20 grs. Slight, transient, tearing drawing in r. knee-joint. Noon, violent, long-continued prick like a needle continually pressed in at one spot just above the l. eyebrow. The pain was removed by violent scratching. At same time, but lasting longer, fine-tearing pain in l. elbow-joint, changing into pricking itching, relieved by scratching. Drawing pains spreading from the interstice between l. thumb and index to these fingers. Dull pain in l. temple, and at the same time tearing pain in l. lower costal region anteriorly. Acute drawing tearing in posterior side of l. forearm, and at same time above elbow-joint in upper arm. All these sensations transient. Repeated itching pricking pain above r. eyebrow, going off by scatching. Needle-pricks at l. side of forehead. Burning heat and redness of face. Tearing slight pain on r. side of top of head. Painfulness of l. eyeball. Pain in l. lower costal region. Painful tearing in r. knee-joint. Much itching here and there on hairy scalp. Urinary secretion diminished. Itching pricking above l. eyebrow and l. ear, on head, and various other parts. Quivering of l. lower eyelid.—5th. No med. From early m., intimations of the hip and sacral pain,—the latter on l. side, resembling lumbago. Itching in various parts, needle-pricks here and there. Much yawning without weariness, e.—6th, m., 30 grs. after breakfast. Very acute, sudden, pressive tearing pain in r.

eyeball, not affecting sight. Painful pressure on l. eyeball, superiorly and externally. Violent paralytic, transient dislocation pain in tendons of dorsal side of l. wrist, as from mechanical injury. Acute pressive pain in small spot in l. temple. Sore pain in centre of l. thorax as after a blow, not affecting breathing. Pressive pain in r. eyeball superiorly and externally, momentary, but frequently recurring. Afternoon, the pain in chest became very violent, and a similar pain came in r. side affecting the breath ; it went off suddenly after lasting 2½ h., and then there came on the pain above l. eyebrow, which quickly went off, and was followed by discomfort in upper part of abdomen with feeling of nausea there and trembling of knees, which soon went off. E., great itching under l. eyelid, as if in eyeball. During the whole proving frequent discharge of inodorous flatus after distended feeling in rectum. Forcible expiration without cough brought away a great quantity of transparent lumps of mucus, with great relief to chest.—7th. The dull hip pain in the region of the l. os ilii very violent, lasted all afternoon, very tiresome when sitting, but going off completely when walking. Much flatus discharged, preceded by colicky pain. A soft, very copious stool.—8th. The pain in l. hip felt in the m. A great quantity of the gelatinous or starch-like expectoration for several d. past.—9th. Still traces of the hip pain. Pain in r. side of chest, tearing on posterior aspect of forearm. (*Ibid.*)

17. Samuel Max, medical student, æt. 20, strong constitution, sanguine temperament, in good health. 21st Oct., m., 5 drops tinct. agar. in water. In a few m., heaviness in feet and head, very transient. —22nd, 10 drops, some confusion of head, heaviness and coldness of extremities, quivering of l. upper eyelid, repeated at noon.—23rd, 15 drops, confusion of head and quivering of upper eyelid.—31st, 5 drops. Soon confusion of head and coldness of lower extremities. All right after breakfast.—4th Nov., 10 drops. In 10 m., coldness of lower extremities. Heaviness of head and inclination to vomit, with watery eructations.—9th, 10 drops. Soon coldness in lower limbs and inclination to vomit. Transient headache. (*Ibid.*)

18. Dr. Rosenberg, æt. 38, sanguine choleric temperament, robust constitution, and, though corpulent, irritable. Disposition to lumbago, sorethroat, and fever. At present quite well.—1st March, 7 a.m., 10 drops tinct. Immediately, burning and scraping in throat, extending deep down into l. side of chest. 9 a.m., these symptoms went off, and he took his breakfast. 1.30 p.m., when walking in open air, suddenly such a violent pain in the sacrum that he could not take another step ; at same time vertiginous nausea, the knees shook, he had to drive home in a cab. Here he vomited his breakfast, which removed the nausea, but the pain in the sacrum not only continued as violent, but extended the whole length of the spine to the nape. The spine was painful to the touch in several spots. E., alternation of chill and heat, restless sleep at n., many unconnected dreams, next m. quite prostrated and weak.—2nd. Pain in sacrum and back still violent, so that he could not leave his bed ; frequent palpitation of heart, little appetite, no stool, copious secretion of urine of pale yellow colour. E., some chilliness followed by heat. Sleep much disturbed.—3rd. Sacral

pain better, dorsal pain still very violent on the slightest movement. E., pain in splenic region, rumbling in bowels, followed by a stool with effort. N., better, no fever.—4th to 7th. Went about his work, but any considerable movement caused violent pain in some spots of the spine. Spirits very depressed. Appetite bad, stool irregular, animal food caused heartburn; at n. he was troubled by flatulence and a deep contractive pain in splenic region.—19th, 5.30 a.m., 5 drops tinct. He lay in bed 1½ h. reading, but could not pay attention to what he read; he became irritable, was cross with his servant, and disposed to scold. A meeting he attended later excited him still more; he got such violent palpitation he had to go and lie down. He soon fell asleep, dreamt much, and on waking was bathed in sweat, and trembled. Later excessive hunger, but his food was not relished; this irritated him; he again got palpitation and convulsive cough with anxious sweat, and was so low-spirited that he could not bring himself to speak to anyone, and locked himself up in his room. E., quiet, ate a little and enjoyed reading the newspaper. Midnight, awakened by a spasmodic pain in l. side of abdomen, with call to stool, but on making an effort to evacuate there came a violent pain in sacrum that extended down into lower extremities. The lower limbs felt bruised and semi-paralysed. The call to stool combined with a sort of tenesmus lasted till m., when violent shooting, burning pains low down in the spine came on.—20th. The dorsal and sacral pain lasted all d. so violently that he had to keep his bed, and lie quite still. E., the sacral pains were nearly gone, but the lower extremities were very painful, as though they had been bruised by a heavy weight.—21st to 23rd. So much better that he could walk out, though not free from pain; the lower extremities were most painful when he got up after sitting some time.—2nd April, 10.30 p.m., 12 drops of 1_x dil. Soon fell asleep, but woke at 3 a.m. with pressive headache; yawned much, and every time he did so had an involuntary fit of laughter. These symptoms lasted about an hour and were followed by profound sleep, from which he woke at 6 a.m., and had convulsive cough, trembling of heart and anxiety. Next m. could go out, but his spirits were very bad. During the d., frequent yawning. E., drawing in back and sacrum. N., three watery stools, with pain in spleen.—3rd and 4th. The same symptoms, though slighter. The dorsal and sacral pain lasted a fortnight longer. (*Ibid.*)

19. Rudolf Schmidt, medical student, began to prove on 15th Oct., with 6 drops tinct., increased the dose gradually till 28th, when he took 45 drops, but experienced no effects.—29th, 50 drops. In 6 h. a tiresome feeling of tension externally in the region of the thyroid gland, increased in e. 10 p.m., a similar tensive sensation in r. groin, increased by rotating outwards and extending r. thigh. This sensation continued on 30th, but went off on walking, returning when standing, and also slightly when sitting or lying. It increased towards e. amounting then to slight pain, the tension in thyroid remained always the same.—31st. Pain in groin less when walking, worse when sitting, lying or standing. Increased in e.—1st Nov. The tension lasted all d., and interfered with walking; he could only walk slowly.—2nd to 4th. The pain as before in the groin; it is aggravated by touch.—

5th. Pain much relieved, not felt when walking, and the tension only felt when standing, sitting, or lying. Tension in thyroid gland gone by the 8th.—9th, 50 drops. After 8 h. the tension in groin returned under same conditions as before. It lasted till 11th, returned for instants on 13th; by 15th was quite gone. (*Ibid.*)

20. Gottlieb Scholz, æt. 23, farmer, phlegmatic temperament, always healthy, bad complexion, tendency to pimply eruption on face, especially forehead.—31st July, e., 3 drops tinct. Immediately qualmishness, nearly causing vomiting; unusual drowsiness.—1st Aug., forenoon, 10 drops. Burning in interior of chest and a kind of oppression. Fine pricking pressure first above eyes. Now and then shooting in l., seldom in r. temple; pain above knee, on outer aspect of femur, as if bruised. Dislocation pain in l. ankle.—2nd, m., formication in scrob. cordis, with nausea. Dislocation pain in l. ankle more severe. On and betwixt eyebrows small, itching pustules, painful to touch, which disappear in a few d. Slight pain in eyeball when moved.—3rd, m., 10 drops. Great repugnance and nausea, from the taste of the medicine. Fermentation in abdomen in ¼ h. Nausea nearly increasing to vomiting. Burning feeling in scrob. cordis. Boring drawing pain in r. side of chest from without inwards, and a peculiar oppression lasting 5 m. Constant inclination to vomit all d. Symptoms all worse m. fasting and after food. Frequent pricks just above eyes. Cross humour.—4th to 6th. Nausea and empty feeling in stomach, worst m. Stool soft. Every d. before eating in the m., flat, insipid taste in mouth. Tongue furred, dirty yellow. Appetite diminished.—7th, m., 10 drops. Soon, empty feeling in scrobiculus cordis. Immediately fermentation in abdomen. Sneezing caused by nausea. Feeling as if a stone lay in stomach. Pressive pain above l. eye. Frequent discharge of flatus. Burning and pressure on eyeballs, especially when moving them. Constant sensation in stomach as if it sank like a great weight into the abdomen. Taste flat. Appetite going.—8th. Pressure in scrobiculus cordis. Griping pinching pain in umbilical region. Drawing cutting pain in a hollow molar, during which the abdominal pains go off, but return when toothache ceases.—9th. Dislocation pain in l. shoulder-joint.—13th, forenoon, 15 drops. Pricks in rapid succession in first joint of l. index. The following symptoms occurred every d.:—Crawling in scrobiculus cordis with nausea; fermentation in abdomen; inclination to vomit; empty feeling in stomach; sneezing during nausea; griping pinching pain about navel; pressure and burning in orbits.—14th. Griping pinching about navel. Constant nausea felt in chest. Satiety with empty feeling in stomach. Accumulation of flatulence, which causes oppression. (*Ibid.*)

21. Dr. Alex. Wagner.—*a.* 19th Aug., e., 10 drops of 2x dil. in water. Next m. when going out felt slight griping in umbilical region for a short time.—20th, 22nd, and 23rd, 15, 20, 30 drops. No symptoms.—24th, 40 drops. Forenoon, confusion of head, weakness, occasional flying stitches in upper part of l. chest. Weak feeling and drawing dislocation pain in r. knee, transient; later colicky pains in belly, especially in umbilical region, lasting longer. For some d.

afterwards occasional griping and transient rumbling, with tendency to diarrhœic stools.

b. 10th Nov, 11 p.m., 10 drops 1_x dil. Next m. head confused, tongue thickly furred, taste flat. Later, pressive pain in temple. Forenoon, while walking in open air repeated transient griping and burning pressive pain in hypogastrium.—11th, 10 p.m., 20 drops. A dull pressive pain in r. hypochondrium towards the back, in the forenoon and for some h. afterwards.—12th, e., 40 drops. Next m. furred tongue, bad appetite; after dinner full feeling and pressure in stomach, with much flatulence.—13th, m., tongue much furred, flat, pappy taste, confusion of head, exhausted feeling when walking. In r. hypochondrium, more towards the back, pressive sensation with occasional shooting, especially when bending body to l., lasting all d. Appetite diminished, with full feeling, as from flatulence, after food. Cross humour, with disinclination for work. At n. itching in navel and inner side of thigh.—14th, m., furrred tongue, flat taste, anorexia, occasional pressive pain in hepatic region, itching on various parts of body, frequently changing its place, and making him scratch.—15th. Furred tongue, anorexia, slight yellowish tinge of complexion, especially about alæ nasi and corners of mouth. Occasional yellow spots before eyes on looking at bright objects; tobacco not relished.—16th. The same symptoms continue in slighter degree; occasional shooting pressive pain in r. hypochondrium, increased by pressure. At n. more intense and long-continued itching in navel, pudendum, and inner aspect of thigh, making him scratch. E., 60 drops.—17th, m., itching and burning at anus, as in tenesmus. Dryness and burning pimples on upper and lower lip, which in the course of the day change into vesicles filled with yellow serum. On hypogastrium, navel, pudendum, and inner side of thigh an eruption appears, consisting of whitish papules, which itch continually, compelling him to scratch, whereby the burning and itching are only increased. The papules seated at the roots of the hairs bleed readily when scratched and leave behind reddish pimples. The itching began with feeling of creeping under the skin which described small circular lines, and was occasionally combined with pricks as with needles and burning. During the d. he felt on both iliac regions and on l. arm a transient itching under the skin. 11 p.m., 80 drops. Slept uneasily on account of the excessive itching compelling him to scratch, not only in the former places, but also alternately on the arms and hairy scalp, which declined towards m., but only ceased at intervals.—18th, m., tongue thickly furred, flat, rather sweetish metallic taste. Lips much swollen in consequence of the vesicles, which have become ulcers. Nape rather stiff and painful on moving head sideways, especially to the r. L. side of head painful to touch through its whole extent. Tension spreading towards occiput and there becoming dull pressive pain with heavy feeling all d. The itching eruption spreads further in the abdominal and femoral regions. By d., great itching in l. hough, and on anterior surface of r. knee, when walking; also in sacral region. This lasts all d., coming alternately in various parts of the body, and frequently changing its seat. 11 p.m., 100 drops.—19th. The itching and burning great at n.,

disturbing sleep. It also occurred often during the d. on different parts. Forenoon, whilst walking, violent contraction of flexor muscles of l. thigh, for 1 h.—20th. The same symptoms—scratching all n. till blood came.—21st. Itching somewhat abated.—22nd, 11 p.m., 150 drops.—23rd. Very restless n., frequent waking on account of itching, especially about navel, pudendum, perinæum, and hairy scalp. M., tongue covered with viscid mucus. Itching not quite so bad by d.—25th. Another very restless n., with frequent waking on account of the burning itching pain, which was almost incessant on the parts mentioned, and on others. During the d. burning pain was felt on the parts which had itched all n., especially on the inner side of the thigh when walking. During the d. there was frequent but transient itching on face, nose, ears, and hairy scalp, with great feeling of exhaustion. The itching and burning lasted during a journey that occupied him till the 1st Dec., as also did the readily bleeding eruption on navel, perinæum, and thighs. The n. of 2nd Dec., which was passed in bed, was nearly sleepless owing to the pricking and burning itching, especially on belly, thighs, and feet.—3rd, m., great exhaustion, compression of head, pressive pain in r. forehead.—4th. Itching and burning, especially about navel and inner side of thighs, continued. It generally began in the e., increased in intensity till midnight. The eruption was seated at the roots of the hairs, each papule being pierced by a hair, and when it had continued for a considerable time 2 to 10 proliferations of the epidermis about the size of pins' heads were observed surrounding the hair like a rosary, and were with difficulty detached from it. (It corresponded to Hebra's *lichen pilaris urticatus.*) Constant dryness of upper lip, with tendency to chap and vesicular eruption on it.—5th and 6th. The itching and burning continued to such a degree that to get rid of it he tried various remedies. Washing with equal parts of spirits of camphor and water removed the itching and eruption in a short time. But he felt a good deal of the itching until 15th Dec., especially at night and particularly on the feet.—16th. Occasional itching, especially on feet and perinæum, at night, bnt no more eruption; the nocturnal itching lasted till the middle of January, especially on the lower extremities, causing scratching till the blood came.

c. 22nd Jan., 10 p.m., 10 drops tinct. in water.—23rd, m., on waking, feeling of exhaustion and confused head. Tongue furred, white; bitter taste. Pressure in r. hypochondrium upwards. After breakfast loose stool followed by griping in hypogastrium in forenoon while walking in open air. 10 p.m., 20 drops.—24th, m., tongue covered with thick fur; pappy taste. Later when walking in open air pressive pain in r. supra-orbital region for a short time. At 9 p.m., 30 drops. N., very restless, late of falling asleep. Woke every h., and difficulty of falling asleep, owing to tiresome smarting itching, especially about navel, pudendum, and perinæum, sometimes also on inner side of l. thigh and foot.—25th, m., head confused, tongue furred, smarting in eyes. During d., frequent itching alternately on neck, extremities, and belly; no eruption.—26th. During d., pressive frontal headache and occasional itching on belly. 9 p.m., 40 drops

—27th, m., furred tongue, pappy taste, confused head. Forenoon and afternoon, repeated attacks of griping, cutting pains in hypogastrium, with flatulence. Frequent itching, causing scratching about navel. 9 p.m., 50 drops. Soon recurrence of cutting pains in the bowels, with rumbling and rattling; dryness of gullet, with astringent taste in mouth. Some transient acute pricks from fauces along Eustachian tube towards r. ear.—28th, m., tongue thickly covered with viscid mucus; astringent metallic taste lasting all d., but in less degree. Discomfort in abdomen, with rumbling and occasional cutting griping. E., itching about navel, causing scratching, with eruption of papules with red areola. 11 p.m., 60 drops. Soon the peculiar dryness of palate, especially felt when swallowing, with occasional stitches towards r. ear and r. parotid gland. Tensive drawing of both sterno-cleido-mastoidei, causing stiffness of neck. Griping and rumbling in bowels.—29th. On awaking dryness of fauces and palate continues, spreading downwards to gullet, and contraction there as though an astringent fluid had been drunk. Tongue covered with viscid mucus. Taste flat, pappy, somewhat metallic. Feeling of emptiness of stomach alternating with pressure as from a heavy body there. In r. hypochondrium heavy feeling and drawing, as though the liver were increased in weight and dragged on its ligaments. Occasional sharp pricks as if radiating from the surface of the r. lobe of liver to its centre. Rumbling wandering about of flatulence in abdomen. Afternoon, several violent shootings in splenic region. 11 p.m., 80 drops. Some time afterwards the peculiar dryness of throat, with shooting towards parotid and submaxillary glands, tension in nape, flatulent movements in abdomen. Later, violent itching in abdomen and legs, making him scratch, with a scattered eruption of readily bleeding papules.—30th, m., tongue thickly furred, dryness of fauces and palate, pressure on the liver, discomfort with frequent rumbling and griping in abdomen in forenoon and afternoon. 11 p.m., 100 drops. In 1 h. tensive drawing in r. jaw towards ear. Dryness in fauces, pressive and burning pain in stomach. Violent itching on abdomen in umbilical region and perinæum, particularly severe on lower extremities, with eruption of papules.—31st. Woke with furred tongue, pappy, flat, metallic taste, dryness of fauces and palate, pressive pain in stomach, with loathing and inclination to vomit. Feeling of exhaustion and confusion of head, increased by walking in open air; occasional discomfort with rumbling and cutting pressive pain in hypogastrium. Itching at n. in bed, especially about navel and inner side of thighs, but without eruption, lasted for another week, and then gradually went off. During the whole of February the tongue in the m. was covered with viscid mucus, its papillæ were very prominent, and the peculiar dry and astringent sensation was perceived. The appetite also was decidedly smaller.

d. 27th February, 10 p.m., 200 drops. Some time afterwards when reading feeling of fulness and confusion of head with drawing towards temples, increased feeling of warmth, especially on ears. Contractive dryness of throat, warmth and rough feeling in sternal region. —28th, m., tongue covered with thick viscid mucus, dryness and

astringent feeling in palate and throat; during the d. repeated rumbling and occasional griping in bowels, with several pappy stools.—1st March. Towards e. itching on lower extremities, especially l., making him scratch. (*Ibid.*)

22. Dr. FERDINAND ZEINER. *a.* 17th June, 9 a.m., 5 drops 1_x dil. agar. Forenoon, empty eructation repeatedly, rancid taste lasting 3 h., pinching in umbilical region, cold feeling in belly, transient stitches alternating in r. and l. frontal protuberance, aching in sacrum; when reading the sight leaves him; on going downstairs weak feeling in legs; this lasts while walking in open air; it seems to proceed from the sacral region. The sun's heat causes violent vertigo. After dinner (at 1 p.m.) could not get his usual siesta on account of violent burning pain in corn on r. little toe, and burning in l. thigh. Slept well, but next m. a small noise brought on violent shootings in r. frontal eminence.—18th, 9 a.m., 10 drops. Eructation of air, scraping in throat, pinching about navel lasting till dinner. Soon after taking medicine frontal headache, aching pain in sacrum with weakness of legs on walking in open air. Sneezing excited by the sun's light caused violent stitches in cæcum; occasional violent stitches in anus; shoots first in r. then in l. knee. 1 h. before dinner bitter taste lasting 1 h., but good appetite. After dinner the same burning pains in corn of r. little toe. Two pappy stools preceded by pinching in belly and accompanied by great discharge of flatus. E., fluent coryza.—19th, 20 drops. Eructation of air; nausea with anxiety, thereafter discharge of flatus. Slight pinching in belly for some h.; three pappy stools; when writing flickering before eyes, scraping feeling in throat with bitter taste; coryza continues. E, sad in cheerful company, unable to take a part in conversation.—20th. Coryza more severe. During d., while walking, smarting in thighs, compelling scratching.—From 21st to 26th. Frequent violent shootings in knees, weakness in feet, three liquid stools a d. at short intervals, frequent urination with increased discharge of urine. The coryza lasted till the 26th. On the 3rd d. it was very severe. First it affected the l. side of the nose with the l. eye for 2 d.; then the r. side of nose and r. eye for 2 d. more; the discharge was acrid and burning. On the 24th, when the discharge diminished, the nose swelled considerably, was bluish red and very painful to the touch; this terminated with desquamation of skin. My coryzas never used to end in this way, but with vesicular eruption on upper lip.—25th. Felt an aching in r. eye as if a grain of sand had got in it under upper eyelid. Nothing was to be seen in the eye, only the secretion of tears was increased. Forenoon, depressed spirits, afternoon cheerful. On l. side of scrotum the skin swelled, became red, and itched; in 2 d. the swelling was gone.

b. 2nd proving: 13th July, 5 drops 6th dil. Immediately, rancid taste, eructation of air, slight shooting in forehead, gradually becoming stronger, especially on l. side. Weak feeling in l. arm and l. foot, uneasiness in the latter, compelling him to move it. In ½ h. eyes dim-sighted, the l. outer canthus burned, and feeling of sand under r. eyelid. Head confused, full, could not go on with reading. In 1 h. pinching in l. side of abdomen with discharge of flatus. Afternoon, frequent shooting pains in r. little toe, especially severe and continuous at 6 p.m., when sitting, relieved by walking up and down

room. On rising from seat, twice shooting on r. knee; when walking at 7 p.m. a painful drawing in r. leg lasting 5 m., on the anterior aspect of leg, extending over knee, with weak feeling in that leg. Slept well. M., on waking, headache, which soon went off.—14th, 10 a.m., 10 drops. Rancid taste, eructation of air immediately, lasting a long time; later, on trying to read the sight was dim, weak, as if through a veil, flickering before eyes; some shoots in forehead, especially l. side. In 1 h. aching in sacrum, with weakness of legs when walking. Afternoon, shoots in anus. 6 p.m., when walking, violent shootings in both knees, for several m., and continued aching in sacrum. Nose dry, and on blowing it some blood came. Appetite good, stool and urine normal. Slept well.—15th. No med. Immediately on waking, depressed spirits, in 1 h. cheerful. When reading, eyes weak, watery, dim-sighted, great exhaustion of whole body. E., a black, sanguineous blister in mouth, which discharged its contents next d. On front of l. leg and on nates boils which were very painful. The boil on nates became as large as a hen's egg, was very painful and discharged, on the 7th d., a considerable quantity of black blood, no pus. This bleeding lasted 5 d. with occasional severe burning pain. Quivering of r. upper eyelid with feeling of weakness of it without having strained the eye; the quivering went off gradually, but the weakness of the eyelid lasted 5 months. (*Ibid.*)

23. Professor D. J. von ZLATAROVICH. *a.* 8th June, m., 10 drops of a mixture of equal parts tinct. agar. and alcohol. After breakfast slight nausea, disgusting taste on root of tongue, dryness in fauces.—9th, 10 drops; emptiness in stomach. After breakfast slight nausea, flatulent distension of abdomen, burning in r. leg. All forenoon uncomfortable feeling in abdomen, which is not distended, but feeling of flatulent distension in it. Noon, when smoking a cigar, exceedingly disagreeable taste, salty, bitter, especially at root of tongue; much saliva pours into mouth, slight rigor over back. Little appetite. After dinner, again the discomfort in abdomen, especially about navel, and the same disagreeable taste; sometimes a very peculiar feeling of constriction under sternum. Afternoon, pretty well. E., the bad taste, the sensation under sternum, and the discomfort in abdomen returned.—10th, 5 drops. Noon, a disagreeable sensation in stomach with commencing nausea. Discharge of flatus. After breakfast severe burning under sternum for an hour. Forenoon, well. Noon, some tightness over chest, slight dyspnœa. Later, pressure under upper half of sternum. Till 19th took every m. 5 drops.—11th, m., coughed several times, severe pressure in l. half of head. After breakfast, burning along œsophagus, short broken sounds in bowels. Noon, very disagreeable, sweetish metallic taste, slight pinching about navel, some tenderness under sternum, blowing of much mucus from nose.—12th, m., cough. Soon slight nausea; afterwards transient stomach-ache, and when this went off some pinching about navel. Forenoon, single attacks of pain under sternum. After dinner great distension of abdomen, several times dry cough, much mucus blown from nose.—13th, m., coughing of mucus several times. About r. inner ankle painful burning of skin as in commencing erysipelas for 1 h. Slight

discomfort in stomach and bowels. Repeated sneezing, occasional tensive pain on chest, sometimes between shoulders, much mucus blown from nose.—14th, m., some mucus coughed up. Noon, slight burning in bowels. Pain in r. inner ankle returned. Forenoon, much mucus blown from nose, with burning in upper lip.—15th, m., on waking, coughed up mucus several times, roughness in throat, slight burning in eyes, frequent sneezing. Had also sneezed at n. without waking. Immediately feeling of pressure and coldness in stomach. Forenoon, pain in head externally, more in posterior half, tension in occiput towards ears, nape, and other parts. Sensitiveness of nasal mucous membrane.—16th, m., cough repeatedly, with feeling of rawness in chest. Slight tenderness of eyes. Pressive pain on crown.—17th, m., coughing up of mucus. After breakfast, slight pinching about navel, discharge of flatus. The pinching became more severe, with call to stool. An insufficient firm stool. Forenoon, repeated slight searching in bowels. A peculiar tensive pain in r. groin. Frequent sneezing, blowing of much mucus from nose.—18th, m., severe cough with mucous expectoration, with raw feeling in chest. After breakfast, feeling of weight under navel. All d. repeated coughing up of masses of mucus. After dinner, transient tearing pains on shaft of l. tibia.—19th. Slept well, but awoke with violent cough; the first impulses of cough brought, along with a kind of convulsion of the whole body, thick expectoration, *i.e.* the cough came suddenly and was so violent that he must double himself together, draw up the legs, and even move the arms. The subsequent fits were not so severe, brought away no expectoration, and were accompanied by sore feeling on the chest. This all went off after a short while. Some burning on the skin of r. leg. Blowing of much mucus from nose.—20th and 21st. No med. M., several mucous coughs. All d. much mucus blown from nose, without further catarrhal symptoms. For several d. past there has been much itching in scalp towards nape, causing continual scratching.—22nd, 5 drops. M., several violent coughs with mucous expectoration. Much mucus blown from nose. 11 a.m., headache, especially weight and tension in occiput and towards nape. In r. upper arm some tension felt on movement.—23rd, 5 drops. M., mucous cough. Tension in upper arm continues. After the dose, disagreeable sweetish taste, which lasts some time after breakfast. Noon, slight stitches and tension on chest. Afternoon well.—24th, 5 drops. M., mucous cough, tension in upper arm gone. Some weight in stomach and abdomen. Discharge of flatus.—25th. No med. Much mucous cough. Burning in r. leg, slight pinching and rumbling in bowels, low spirits.—26th, 5 drops. Slept well, but passed an unusual quantity of urine. M., mucous cough, occasional transient drawing pain in some long bones. After breakfast slight pinching in abdomen, discharge of flatus. In r. upper arm painful tension on movement. Copious pappy stool, followed by feeling of weight in hypogastrium. During the d. well except occasional cough.—27th, 5 drops. Slept well. M., great sexual excitement. Much mucous cough and nasal mucus; pressure in stomach, weight on chest. Tension in r. leg. Forenoon, very tired after a moderate walk. Skin of whole body, especially face,

very smooth, soft, and free from pimples.—28th and 29th, each d., 5 drops. M., mucous cough, distension of abdomen, burning on r. leg. —30th, 5 drops. M., mucous cough. Coolness and weight in stomach. Sneezed several times. Afternoon, on working hard, frequent cough, whirling running in scalp, occassional pressive pains in shin-bone.—1st July, 5 drops. Slept well. M., roughness in throat and mucous cough. Some pain in r. leg. After dose disagreeable sweetish taste, weight in abdomen. Forenoon, well. Noon, disagreeable taste like the med. Discomfort in abdomen, and also in whole body. Feeling as if belly were quite empty.—2nd, 5 drops. Slept well. M., mucous cough. After dose weight and discomfort in stomach, slight drawing and pressive pain in r. shoulder. Forenoon, frequent drawing pains in l. forearm bones, alternating with similar pain in shaft of r. tibia.—3rd, 5 drops. M., cough as usual. After dose, urging towards anus. Forenoon, frequent tearing in bones of l. forearm. Warm feeling in anus.—4th, 5 drops. M., loose cough. Burning on r. leg, slight urging in hypogastrium, discharge of flatus, itching and small pimples on occiput, near nape.—5th, 5 drops. In the n. and m., violent cough with mucous expectoration. After dose, pressure and burning in stomach. Forenoon, short tearing in bones of l. forearm. Noon, pressure in both temples. After dinner, burning in chest. Much cough, mostly dry, with mucous râles, but no expectoration. Afternoon and e., little cough, but much nasal mucus.—6th, 5 drops. M., loose cough and slight pain in r. hand and bones of forearm. During d., frequent loose cough.—7th, 10 drops. On waking, much mucous cough. After dose, slight burning in stomach. A vesicle on vermilion of upper lip, that burns.—8th, 10 drops. M., loose cough. After rising, some pressive pain in r. side of chest. Much flatus discharged. Vesicle on upper lip gone. Nasty, bitter, resinous taste. Dryness in fauces. After dinner feeling of distension of abdomen. Peculiar, burning itching in r. wrist, as from a bristly hair. E., cough with thick mucous expectoration.—9th, 10 drops. Difficult waking in m. After dose transient pinching pain in bowels. Discharge of flatus. —10th, 10 drops. M., mucous cough. Insufficient stool, followed by distended feeling in belly.—11th, 10 drops. M., much mucous cough. After rising, call to stool, but only a little hard evacuation; later, an ordinary stool. For several d., occasional itching on occiput, where small pimples appear.—12th, 10 drops. All d. well, except the usual cough.—13th, 10 drops. M., mucous cough. Some itching and sore places on hairy scalp. After dose, emptiness of stomach. Burning on r. leg. Some itching at anus.—14th. Well, except usual cough.—15th. Changed to pure tincture, of which he took 2 drops, in m. Mucous cough, slight pressure in stomach. Sometimes drawing pains in fingers, as if in periosteum. Sometimes internal pains on bones of legs.—16th, 3 drops. M., mucous cough. Soon heaviness in abdomen, especially about navel. This soon went off, but there came on a peculiar smell of the tincture.—17th, 5 drops. M., coughing up of mucus. After breakfast, heaviness in abdomen, especially navel, discharge of flatus. On the heavy feeling sinking down in belly, urging to stool, which is firm and unsatisfactory.—18th, m., loose cough. After dose, heavy feeling in stomach, discharge of flatus. After breakfast,

the heavy feeling descends, lasts an hour, and goes off without stool.—19th, 10 drops. M., some mucous cough. After dose, weight about navel. Forenoon, frequent cough, dry, or with mucus, and pressive pain under scapula. Exhaustion and much affected by the air. Slight drawing about both ankles.—20th, 15 drops. M., usual cough. Soon after dose, slight pinching here and there in belly, more in the integuments than bowels. Discharge of flatus. After breakfast, pressure in stomach and transient burning in hypogastrium. Forenoon, frequent short cough, rarely mucous expectoration. Noon, again some abdominal pain, sometimes in scalp at occiput tearing, tensive sensation.—21st, 20 drops. Slept well, but often ground teeth in sleep. M., some cough with mucous expectoration. After dose, disagreeable feeling in stomach, rumbling in bowels, discharge of flatus. Forenoon, much mucous cough. Afternoon and e., frequent itching here and there in body. Burning on r. leg.—22nd, 20 drops. The med. has a disagreeable taste. After breakfast, slight searching in hypogastrium with flatulent feeling, some mucous cough.—23rd, 25 drops. M., some cough with mucous expectoration. Discharge of flatus. Sneezed several times. After breakfast, transient pressure and tension all over chest.—24th, 30 drops. Nothing but loose cough.—25th, 30 drops. M., loose cough. Soon after dose, rumbling in bowels. Weight and bearing-down in hypogastrium. Burning on r. leg.—26th, 30 drops. M., occasional coughing up of mucus. After breakfast, very disagreeable, sweetish sharp taste, weight in hypogastrium, slight urging to stool, lumpy stool, thereafter slight burning in anus.—27th, 35 drops. On waking, frequent violent cough, slight drawing about both ankle-joints. Soon after dose, slight pinching in hypogastrium. After breakfast, copious loose stool, thereafter slight tenderness and flatulent feeling in hypogastrium. Bad taste. 11 a.m. A second semi-fluid stool. After dinner, great distension of abdomen.—28th, 35 drops. M., some loose cough. Sore pain on anterior surface of chest, especially r. side, near sternum, as if under ribs. Soon afterwards, loose stool, when the pain in chest went off, but beneath navel, in a spot the size of the fist, a feeling of weight and kneading together, lasting ½ h.—29th, 35 drops. M., mucous cough. Noon, painful drawing in occiput, which went off for a couple of h. at noon, but came back after dinner. For some d. the skin on the inner surface of the lips is apt to come off when smoking cigars.—30th, 40 drops. Some discharge of flatus and feeling of weight in hypogastrium. Disagreeable sweetish taste. Some loose cough, rumbling in hypogastrium. Forenoon, when sitting, a disagreeable drawing and tearing in shafts of long bones of upper and lower extremities, occasional tiresome dryness of mouth and fauces, which parts are sensitive to the air.—31st, 40 drops. M., loose cough. Soon heaviness in hypogastrium, discharge of flatus.—1st Aug., 40 drops. Soon, feeling of flatulent distension and pressure in hypogastrium. Cigar tastes bad. Coughing of mucus. E., disagreeable sensation in fore part of urethra, along glans, making him press the part.—2nd, 40 drops. M., coughing of mucus, flatulent distension in abdomen, transient tightness of chest. After dinner, short dry cough.—3rd, 45 drops. Immediately slight transient burning pain in hypogastrium.

Some mucous cough; discharge of flatus.—4th, 50 drops. M., mucous cough. Epithelium on inside of upper lip detached in flakes. Two h. after dose, pressure and burning in stomach, lasting 1 h., then feeling of weight and distension in abdomen. This lasts a short time, and is replaced by feeling of emptiness.—5th, 50 drops. M., mucous cough. Discharge of flatus. Soon after dose, feeling of weight in hypogastrium. Forenoon, when walking, for 1 h. a kind of pointed pricking from within outwards on lower half of chest and abdominal integuments.—6th and 7th, 50 drops. Nothing but mucous cough, and discharge of flatus.—8th, 50 drops. M., twice coughed up mucus. A hard, unsatisfactory stool. Noon, disagreeable sensation in anus like weight or fulness, goes off when sitting,—9th, 60 drops. M., coughs up mucus. After rising, copious stool, soon afterwards transient feeling of weight in hypogastrium. Forenoon, when walking, great thirst.—10th, 60 drops. M., coughs up mucus. On waking, l. semilateral headache, going off on rising. After dose, burning in stomach and weight in abdomen, burning on r. leg. E., on undressing, finds on back two inflamed pimples, which on being pressed exude bloody pus.—11th, 60 drops. M., coughs up mucus, copious loose stools, thereafter slight burning at anus. Occasional tension in scalp. After dinner, discharge of flatus. An inflamed pimple on r. cheek.—12th, 60 drops. M., mucous cough. After dinner, short dry cough.—13th, 65 drops. M., coughs up mucus; all forenoon, copious sweat.—14th, 70 drops. M., coughs up thick mucus, slight burning in stomach, weight in abdomen, loose stool followed by slight burning at anus. Forenoon, great thirst for beer. After dinner frequent, short, dry cough.—15th, 70 drops. M., coughs up mucus. After dose, warm feeling in stomach, eructation of air; on back an inflamed pimple, which when pressed exudes much pus. On hairy scalp several spots covered with thin scabs.—16th, 75 drops. M., coughs up mucus. After dose, discharge of flatus, weight in hypogastrium.—17th, 80 drops. Difficulty of waking. Coughs up mucus. After breakfast, weight in abdomen. Transient feeling of creeping and running through all nerves, proceeding from abdomen. Burning in skin of r. leg. Forenoon, when walking, very much fatigued. E., after drinking a glass of beer and smoking a cigar, became suddenly sick, must vomit up dinner undigested. Soon afterwards felt well, very hungry, ate and drank without further symptoms. —18th, 80 drops. Slept well, but perspired much at night. On waking, severe cough with expectoratiou of thick mucus. Soon after dose, weight and tension in hypogastrium. Occasional cough during d.—19th, 85 drops. Awoke frequently at n. by violent fits of coughing. Soon after dose, weight in hypogastrium; flatus present, but not discharged. Urging towards anus.—20th, 85 drops. Coughed much at n., perspired. Immediately after dose, weight under navel, urging of flatus, thereafter rumbling in bowels, whereupon the feeling of weight goes off.—21st. Two such violent fits of coughing in the n., each of which lasted 1 h., that he took no med. The cough was provoked by tickling in trachea, was generally dry, but sometimes with mucous expectoration. After rising and during d. very little cough, but in the e. had several violent coughs.—22nd, 85 drops. Having coughed but

little during the n., resumed the proving. Soon after dose, oppression of chest and slight coughing up of mucus.—23rd, 90 drops. M., some loose cough, pressive pain in l. forehead. Pressure on chest. Taste disagreeable, sweet, resinous. A small loose stool, followed by weight about navel. Forenoon, great thirst.—24th, 95 drops. M., a little coughing of mucus. After dose, weight in abdomen, scanty, half-liquid stool, slight pressure on chest. Burning on r. leg. Forenoon, a second similar stool. After dinner, great burning on r. leg. Forenoon and afternoon, though had eaten well at noon, very nasty, sweet nauseous taste. Afternoon, frequent coughing of mucus, with feeling of weight on chest.—25th, 100 drops. Immediately, weight and tension in abdomen. After breakfast, a scanty, loose stool. Thereafter feeling of flatulence in abdomen. This goes off after a while, and is replaced by the disagreeable taste. Burning in r. leg.—26th, 100 drops. M., coughing up of mucus. After breakfast, very disgusting taste, an insufficient, semi-fluid stool, burning in r. leg, distension in abdomen. Well during d. E., great itching on back, where several small, red, slightly elevated points appear. The itching lasted ½ h.—27th, 100 drops. M., hardly any cough. Some rumbling in bowels, discharge of flatus. After breakfast, tension over chest, as though it could not be sufficiently expanded. A copious loose stool, followed by flatulent feeling in abdomen, and then slight shooting from within outwards, through abdominal integuments, as though in peritoneum, which soon goes off.—28th, 100 drops. M., only coughed mucus twice. This cough, which he had throughout the proving, was peculiar. It comes on suddenly, is so violent that it cannot be suppressed easily; several coughs follow one another, which cause him to cower together, and bring the tears to his eyes; then the cough ceases for a considerable time, often half a day. After the dose, rumbling in bowels. A copious soft stool, followed by flatulent distension of abdomen. After ½ h. bruised feeling, pain of the whole anterior thoracic wall, with some oppression of breathing. Sweet, nauseous taste. During the d., occasional violent, jerky coughs. Sexual desire during the proving pretty strong.—29th, 100 drops. M., mucous cough. Soon after dose, tightness all over the front of chest, lasting ½ h. During the d. several times fine pricks on various parts of skin, as with a needle, nothing to be seen. Forenoon, weight in abdomen under navel. Forenoon, some violent coughing fits with mucous expectoration, between whiles the chest is quite free.—30th, 100 drops. M., coughs mucus. Soon after dose, warmth in abdomen, discharge of flatus. A couple of fine pricks through urethra. After ½ h. tightness over front of chest with some oppression of breath. A half-fluid stool. Sweetish nauseous taste. Pricks through urethra again. Later, many fits of violent cough. Forenoon, while dining, tensive pain in region of bladder. Little appetite for dinner. After dinner, very disagreeable taste. Occasional very violent cough with expectoration of mucus. Afternoon and e., almost no cough, chest quite free. When walking, shooting burning pain in ankle-joints in fits, also fine shooting in knee-joints. The bad taste frequently returns, especially after drinking beer.—31st, 100 drops. M., a few coughs with mucus. Immediately after dose discharge of

flatus. A consistent stool, afterwards feeling of flatulent distension in abdomen.—1st Sept., 100 drops. M., a few slight coughs with mucous expectoration. After dose, discharge of flatus. A fit of spasmodic cough; after a little another. Then the chest becomes painful. After 1 h. drawing pressive pain in legs, especially ankles. After a copious loose stool distension of abdomen. Disgusting taste. During forenoon, at intervals of 2 or 3 h., fits of coughing. Drawing in forearm occasionally. Noon, creeping and burning in skin of both legs from hip to heel.—2nd, 100 drops. M., violent cough in fits, generally dry. 1 h. after breakfast, extremely disgusting sweetish resinous taste and flatulent distension of abdomen. Forenoon, several convulsive fits of coughing.—3rd, 100 drops. M., several coughs with mucous expectoration. The cough resembles whooping-cough, a deep whistling inspiration is followed by several short shrill-sounding coughs, with cowering together of the body, inclination to vomit, tears in eyes. The epithelium on inner surface of upper lip becomes again detached; feeling of weight below navel. A loose, unsatisfactory stool, followed by the disgusting taste for ½ h. During d. several fits of coughing.—4th. No med. Coughed frequently during n. M., very unwell. Prostration of body, confusion of head, burning of eyes, dryness of nose. After rising cough returned; pressure and drawing pain in chest continues. After a little, severe drawing in loins and sacrum. Forenoon, febrile excitation, chiefly chilliness, occasional flushes of heat, severe headache, especially in crown, now and then fit of violent cough; no thirst. After dinner, cool and sleepy. After slumbering for 1 h. got warm again, less headache, coughing fits rarer, feels rather exhausted. In a short time a violent rigor; he lay doubled up on the sofa. Teeth chattered, headache in crown severe, hands blue, no thirst. Went to bed, soon got warm, but headache lasted longer. Slept with interruptions at n., groaned much in sleep, and towards m. had copious sweat with relief. The spasmodic cough comes more frequently, but he could suppress it. But when the cough did come it was so violent, shook him so much, that he had to sit up in bed, as the spasmodic contraction of his windpipe threatened to suffocate him.—5th. No med. M., well, except exhaustion and sacral pain. On rising much flatus discharged. On sponging back felt a peculiar sensitiveness along spine that suggested to him spinal irritation; later, when stooping, a peculiar painfulness along spine, especially dorsal vertebræ. (Perhaps the cough was also of spinal origin.) During forenoon, very sensitive to cool air. Eyeballs painful when touched, and moving them was difficult; they felt tight in orbits. After dinner, slight pains in back and tightness over both sides of chest, from back to front. Later, this tightness was felt chiefly in lumbar vertebræ, making bending forwards difficult. Flush of heat in face, with sweat on forehead. E., no fever, but had great general illness and discomfort. Drawing and stretching pain all along spinal column, and occasional transient pains along the course of the spinal nerves. Spinal column sensitive to touch. Drawing and stretching on anterior surface of thighs.—6th. No med. Slept very ill; the pains along spinal column were so

violent that he could find no easy position in bed; the drawing and stretching pains in whole r. leg very severe. In the n. great heat, glowing face, towards m. some sweat. At n. several fits of coughing. M., the spinal column so sensitive that even leaning back in chair caused pain. On upper lip several painful, not red pimples. During forenoon, chilliness, constant disagreeable sensation all over back, especially in spinal column. The fibrous aponeurosis in r. thigh is painfully tense. After dinner, spine painful; especially a space about the size of a palm on middle of spinal column is very sensitive to touch and to every movement of the body. Constant incitation to cough, but the cough can generally be suppressed, but when the cough comes it is very painful, and generally dry. E., backache slight, but r. thigh very painful. Almost no cough. Movement of eyes in their orbits slightly impeded. After supper, the back pains return.—7th. No med. Woke up about midnight with such violent pains along back, over chest, loins, in r. thigh, that he could sleep no more. Tossed about in bed for an h., then got out of bed at 1 a.m. Took 2 drops of rhus tox. 2. In ½ h. the pains abated, went to bed and slept till m., getting into profuse perspiration. M., exhausted, on rising slight backache, copious loose stool with discharge of much flatus. Fits of coughing rare. Noon, back pains pretty severe, pressure in eyes. Afternoon, well except a few short fits of coughing.—8th. No med. The effects of the agar. seem to be at an end. Almost no cough in the n.; only the slightest trace of pain in back and legs. During the d. coughed several times, and after every cough sneezed several times in succession.—9th. Coughed a few times on waking, and expectorated mucus. Some spots on head painful to the touch. During the d. several violent but short fits of spasmodic cough.—10th, 100 drops. M., several violent coughs with little expectoration. A copious loose stool, thereafter a violent fit of coughing, with inclination to vomit and tears. Very disgusting taste lasting all day, and great tendency to spasmodic cough, especially when smoking.—11th, 100 drops. In the n. such a violent fit of coughing that he had to sit up in bed, and for a long time could not get his breath. After breakfast, distension of abdomen, discharge of flatus. After every fit of coughing violent sneezing.—12th. No med. Wakeful from 1.30 till 2.30 a.m. On waking in m. violent dry cough, with burning in eyes. After rising, pains in chest, burning under sternum. Sweats profusely on legs at n. During d. frequent violent coughing, with pain under sternum.—13th, 100 drops. M., coughed several times, but not so violently. After breakfast, pressive burning pain under sternum. Several violent fits of coughing, ending in sneezing.—14th, 100 drops. M., several violent coughs with expectoration of mucus. After breakfast, sore pain under sternum. After a loose stool burning at anus. When smoking, disgusting taste, feeling of flatulent distension of abdomen.—15th, 100 drops. M., loose cough. Soon after dose discomfort in stomach. Eructation of air, weight and tightness in scrobiculus cordis, then drawing and tension in occiput lasting all forenoon. Occasional violent fits of coughing.—16th. No med. Slept ill owing to pressive pain in crown. While lying awake grew suddenly

so weary of life that death appeared desirable, though there was not the slightest moral cause for this feeling. After dinner began to cough and sneeze so violently that he had to cry out.—17th. No med. M., coughed a few times, followed by sneezing. After dinner violent fits of coughing followed by sneezing. The sneezing follows the coughing so rapidly that he often cannot tell which is which. The nasal secretion is increased.—18th, 100 drops. M., several coughs and sneezes, later some fits of coughing with retching.—19th, 100 drops. M., coughed several times with mucous expectoration.—27th. The last week was spent in the country, and no med. taken. Remained pretty well, but was troubled with severe headache on r. side, and almost all the time with cough of the usual kind.—28th, 100 drops. During d. several sudden fits of coughing.—29th, 100 drops. M., occasional coughing of the same kind as before. After breakfast, discomfort in hypogastrium. Afternoon, frequent violent fits of coughing, followed by sneezing.—30th, 100 drops. Snoring and wheezing in chest during sleep. On waking frequent loose cough and blowing of mucus from nose. During d. repeated coughing.—1st Oct., 100 drops. M., coughing and sneezing. A copious loose stool, afterwards some pinching in bowels, discharge of flatus. During d. several fits of violent cough, with little expectoration. Afternoon, a fit of coughing with vomiting.—2nd, 100 drops. Several fits of coughing during d.—3rd, 100 drops. M., mucous cough. Forenoon, blowing of mucus from nose. Noon, very violent cough, with repeated sneezing. Afternoon, fits of coughing.—4th, 100 drops. Mucous rattles in chest at n. M., mucous cough. During d. several violent fits of coughing, generally with mucous expectoration.—5th, 100 drops. Mucous rattles in chest at n. M., cough with mucus.—6th and 7th. No med. Occasional fits of coughing.—8th, 100 drops. When lying on back mucous râles are heard, coughs occasionally, sometimes with mucous expectoration. When he yields to the cough it becomes so violent that he must cower together, tears come out of eyes, and saliva is ejected from mouth. Afternoon, itching on crown, where there are several spots with narrow borders.—9th, 100 drops. Some severe cough at n. After dose, pressure in stomach, discharge of flatus. Forenoon, several violent fits of coughing.—10th, 100 drops. M., mucous râles in chest. Then several violent fits of coughing, but rarely expectoration. A firm stool, followed by burning at anus. For several d. the urine after standing a short time has become turbid.—11th, 100 drops. When asleep perspired profusely in r. leg, mucous râles in chest. M., cough with little expectoration. On awaking, severe pain in l. maxillary joint, he can scarcely open mouth; later it is relieved, but does not go quite away. Much discharge of flatus. During d. frequent fits of coughing. On crown many small painful pimples, as also on back.—12th, 110 drops. M., occasional cough with mucus, pain in l. maxillary joint still there, but not so severe as yesterday; it is most felt when opening the mouth wide as in yawning.—13th, 120 drops. M., occasional coughing of mucus. Soon after dose discharge of wind upwards and downwards. During d. occasional violent cough. Pain in jaw much less.—14th, 130 drops. M., loose

cough. Pain in jaw gone. During d. several fits of coughing. Spots on crown.—15th, 140 drops. M., some mucous expectoration. Soon after dose transient weight in abdomen. Forenoon, several violent fits of coughing.—16th, 150 drops. M., mucous cough. During d. several fits of coughing.—17th, 150 drops. M., a few loose coughs. Burning on skin of r. leg. Burning on crown after breakfast, weight in abdomen, which goes off after a copious loose stool.—18th, 150 drops. M., coughed a few times. After breakfast, weight in hypogastrium. During d. several fits of spasmodic cough.—19th, 160 drops. M., a few loose coughs. Forenoon, several fits of coughing ending with sneezing. Much mucus blown from nose.—20th, 170 drops. M., several loose coughs. Immediately after dose rumbling in stomach and bowels, wind discharged upwards and downwards. Weight under navel. Hot feeling in head, especially crown, also in eyes. A copious loose stool, followed by voluptuous itching, then burning, in anus. For some time copious secretion of ear-wax.—21st, 180 drops. M., loose cough, itching on hairy scalp. Noon, pressure and discomfort in abdomen, especially about navel. Forenoon, several violent coughs. Noon, great itching in anus and burning in r. leg.—22nd, 180 drops. After dose, burning in stomach, then weight in abdomen. After breakfast, very disagreeable sensation in stomach, as of pressure and burning, thereafter rumbling in bowels. All forenoon peculiar uneasiness in stomach and abdomen.—23rd, 200 drops. At n. very little cough. After breakfast, distension of abdomen, bad taste. During d. occasional spasmodic cough.—24th, 200 drops. Great sexual excitement. After breakfast, distension and weight in abdomen. Cough with sneezing.—25th, 210 drops. Slight cough. M., after the dose emission of flatus. Burning in stomach, then gradually in bowels. All forenoon constant discomfort in abdomen with distension. Slight burning in anus.—26th, 210 drops. M., pressive pain in crown. Forenoon, after eating plums, pressure in stomach, great confusion of head.—27th, 210 drops. M., mucous cough. After breakfast, weight in hypogastrium. Emission of flatus, some fits of coughing during d. —28th, 220 drops. Vague sexual desire. M., mucus in chest. During d., some violent fits of coughing.—29th, 230 drops. Immediately after dose scrapy feeling in throat. Weight in hypogastrium. All forenoon indescribable discomfort. Little cough. Afternoon, acute pain in a corn.—30th, 230 drops. M., occasional mucous cough. Eruption of vesicles on upper lip. Forenoon, some fits of coughing.—31st, 240 drops. After breakfast, weight in hypogastrium. Emission of flatus. Several coughs with mucous expectoration. A loose stool, followed by rumbling in bowels. Eructation of air, later weight in hypogastrium.—1st Nov., 240 drops. Coughed several times, with expectoration of mucus. After breakfast, weight and discomfort in abdomen, rumbling in bowels. Emission of flatus. Forenoon, when sitting, slight oppression and stitches in chest.—2nd, 250 drops. M., some mucous cough. After dose, emission of flatus.—3rd, 250 drops. Mucous cough, m. After breakfast, weight in hypogastrium. Forenoon, repeated but momentary attacks of vertigo, more in open air, less in room. Noon, slight pinching in belly, emission of flatus.

After dinner, burning in r. leg.—4th, 260 drops. M., mucous cough. After dose, flatulent distension of abdomen, emission of flatus.—5th, 270 drops. M., itching on head, mucous cough. After breakfast, weight in stomach and hypogastrium. Pressure in nasal bones. All d. frequent, exhausting, mostly dry cough.—6th, 270 drops. M., mucous cough. Burning in r. leg. After breakfast, discomfort in stomach, very bad taste.—7th. No med. Though more med. has been taken the last period, not only did no new symptoms appear, but the former ones gradually disappeared.—8th. No med. M., some mucous cough.—9th. No med. Cough entirely gone.—10th. No med. Occasional spasmodic cough.—11th. No med. Cough slighter.

b. 22nd.—As health was completely restored, commenced trials of the 10_x dil. M., 10 drops. Soon, emission of flatus.—23rd, 10 drops. M., very violent pressive drawing pains in l. tibia, slight pinching in bowels. After breakfast, rumbling in bowels, eructation of air. Forenoon, when walking, pains in tibia disappeared, but returned, noon, when sitting.—24th, 10 drops. M., pain in l. tibia; forenoon, when walking, this went off; noon, returned for a short time. Afternoon, frequent violent cough. E., severe burning pain on dorsum of l. foot.—25th, 10 drops. M., severe pains in l. tibia. After breakfast, rumbling in bowels, emission of flatus. Forenoon, frequent, very violent cough. E., when sitting severe pains in dorsum of l. foot.—26th, 10 drops. M., soon pains begin, last all forenoon with intermissions, worst at noon, diminish afternoon and e. These pains are chiefly in l. tibia, but appear sometimes in l. elbow. The pains are relieved in warmth of bed.—27th. No med. M., the pains returned, but more in r. than l. tibia. Occasional cough during the d. E., pains in leg, but slighter.—28th. No med. M., quite well, later slight pains in both tibiæ.—29th, 10 drops. During d. occasional cough and slight pain in r. leg.—30th, 10 drops. Immediately, emission of flatus, some tenderness in tibiæ, but no pain. During d. occasional cough.—1st December, 10 drops. M., on rising, slight pains in tibia.—2nd, 10 drops. Soon after rising, pains in both tibiæ, which soon went off.—3rd, 10 drops. M., slight mucous cough, emission of flatus.—4th, 10 drops. M., emission of flatus, burning pain in r. leg, as if an ulcer would form, eructation of air.—5th, 10 drops. M., burning on both legs, which went off when got up.—6th, 10 drops. M., burning on r. leg.—7th, 10 drops. M., emission of much flatus, distension of abdomen.—8th. No med. On waking, griping in bowels, diminished after a copious stool, but rumbling in bowels for some time afterwards.—9th, 10 drops of 9x dil. Forenoon, well. After dinner, severe burning pains on r. leg. 10th, 10 drops. After dose much flatus emitted; corn on r. little toe very painful. Noon, slight griping in belly.—11th, 10 drops. M., much flatus discharged. Proximal joints of r. index and middle finger red and sensitive to touch.—12th, 10 drops. Redness of finger-joints gone. Noon, great pain in corn of r. little toe.—13th, 10 drops. No symptoms.—14th, 10 drops. Some burning on r. leg. Afternoon, severe pain in corn of r. foot.—15th, 10 drops. No symptoms.—16th, m., pressing pain on crown, burning in r. calf. Afternoon, for an h. tearing burning in r. thumb,

a pustule in whisker.—17th, 10 drops of 8x dil. M., occasional mucous cough. Forenoon, such severe pain in corn of r. foot he must limp. E., when sitting, corn still very painful. Later when writing, a noise in l. ear like a distant bell.—18th, 10 drops. M., in bed, pain in corns. After breakfast, great discharge of flatus.—19th, 10 drops. M., repeated mucous cough.—20th, 10 drops. Immediately pinching in belly relieved by emission of flatus.—21st, 10 drops. M., pain in r. leg. Little cough. 22nd, 10 drops, formication in r. leg. Great discharge of flatus.—23rd, 10 drops. Emission of flatus. Forenoon, coughed occasionally.—24th, 10 drops. Soon, weight and pressing down in hypogastrium, burning on r. leg.—25th, 10 drops of 7x dil. M., mucous cough. Weight and burning in r. leg. Discharge of flatus. E., burning on r. leg.—26th, 10 drops. M., severe mucous cough. During d. occasional burning on r. leg.—27th, 10 drops. After rising some tension in r. leg. Discharge of flatus.—28th, 10 drops. Hardly any cough. After breakfast flatulent distension of abdomen, discharge of flatus.—29th, 10 drops. Discharge of flatus, weight in abdomen, burning on r. leg.—30th, 10 drops. On waking, sudden call to stool, evacuation of large, tough, sticky excrement, after which rumbling in bowels, burning in r. leg. During d., slight hardness of hearing of l. ear.—31st, 10 drops. Perspiration on legs.—1st January. No med. No symptoms.—2nd, 10 drops. M., occasional mucous cough. After breakfast, weight in hypogastrium.—3rd, 10 drops of 6x dil. M., little cough. Severe pain in corn.—4th, 10 drops. M., occasional mucous cough.—5th, 10 drops. M., great flatulent distension of abdomen. Noon, sudden violent pains in l. side of chest, over a hand's breadth space, lasting more than an h., then suddenly disappearing.—6th, 10 drops. Distension and rumbling in bowels.—7th, 10 drops. M., severe sacral pain, drawing, stretching. After breakfast, very bad, bitter, resinous taste.—8th, 10 drops. Some burning on r. leg.—9th, 10 drops. Severe pains in r. corn.—10th, 10 drops. No symptoms. —11th, 10 drops. Occasional mucous cough.—12th, 10 drops of 8x dil. M., mucous cough. Great discharge of flatus.—13th, 10 drops. M., pressive pain in crown, repeated sneezing, discharge of flatus.—14th, m., mucous cough. Soon after dose great rumbling in bowels.—15th, 10 drops. After breakfast, distension and rumbling in abdomen.—16th, 10 drops. Tearing in l. shoulder.—17th, 10 drops. M., great discharge of flatus.—18th, 10 drops of 4x dil. Soon, slight pinching in abdomen, discharge of flatus.—19th, 10 drops. Forenoon, occasional pressure in umbilical region. Frequent fatiguing, dry cough, caused by irritation in trachea.—20th, 10 drops. M., on waking, violent, aching, pressing pain in crown, going off gradually in open air. —21st, 10 drops. M., great discharge of flatus.—22nd, 10 drops. The corn on r. little toe very painful. After breakfast, distension of abdomen, rumbling in bowels.—23rd, 10 drops. After breakfast, rumbling in bowels; discharge of flatus.—24th and 25th, 10 drops. No symptoms.—26th, 10 drops of 3x dil. M., pressure in facial bones, especially orbit. Dryness of nose, burning in r. leg, discharge of flatus. —27th, 10 drops. Rumbling in bowels, eructation of air, discharge of flatus.—28th, 10 drops. M., great discharge of flatus. After dose,

flatulent distension and tenderness in abdomen, great pains in r. corn. Pressure in stomach.—29th, 10 drops. M., much flatus discharged, n., occasional tearing pain in r. tibia.—30th. No med. M., pain in r. tibia.—31st, 10 drops. M., in bed, frequent violent cough with phlegm. Some burning in r. tibia.—1st February, 10 drops. M., cough with phlegm. After dose, rumbling in bowels.—2nd. No med. All d. well.—3rd, 10 drops. After dose, distension of abdomen. Noon, transient pressure in anus.—4th, 10 drops. M., drawing in r. leg. Repeated violent cough.—5th, 10 drops. After dose, eructation of air, discharge of flatus. Burning and sore pain in skin of r. hand from wrist to thumb and index, nothing to be seen, but part so tender that mere stroking with finger caused pain. Noon, heat and itching in anus.—6th, 10 drops. M., great discharge of flatus. Cough with phlegm. After dinner, qualmishness in stomach, rumbling in bowels. —7th, 10 drops. N., repeated violent cough. After dose, discharge of flatus. Afternoon, frequent pressure in chest, here and there, swelling of neck, feeling as if neckcloth were too tight.—8th, 10 drops, 2x dil. N., many vivid dreams. Immediately after dose, weight in abdomen. During d., severe pains in corn, occasional cough. E., great distension of abdomen, rumbling in bowels.—9th, 10 drops. After dose, distension of abdomen, discharge of flatus. Repeated cough with phlegm.—10th, 10 drops. M., discharge of flatus. Cough with phlegm.—11th, 10 drops. Woke with headache, from aching, pressing, limited to crown. This went off gradually after rising. Cough with phlegm. Discharge of flatus.—12th. No med. M., repeated cough with phlegm, burning in r. leg.—13th. No med. M., cough with phlegm.—14th, 10 drops, 2x dil. M., cough with phlegm. Noon, rumbling in bowels, slight pinching about navel.—15th, 10 drops. M., cough with phlegm. After dose, weight in hypogastrium.—16th, 10 drops. Profuse perspiration on leg. M., cough with phlegm. A small vesicular eruption on r. ala nasi.—17th, 10 drops. On waking violent aching pain in crown, relieved by rising; discharge of flatus. Burning on r. leg. Blows much mucus from nose.—18th, 10 drops. After breakfast, great flatulent distension of abdomen. Burning on r. leg. After dinner, distension of abdomen. —19th, 10 drops of 1_x dil. Woke with pinching in belly, followed by two liquid stools. Perspired profusely at n., especially on legs. After breakfast, again pinching in bowels.—20th, 10 drops. After dose, flatulent distension of abdomen. After breakfast, severe pinching in hypogastrium.—21st, 10 drops. After dose, pinching in bowels.—22nd, 10 drops. M., cough with phlegm. A copious loose stool. Forenoon, frequent distension and discomfort in abdomen.—23rd, 10 drops. After dose, griping in belly, pain in crown.—24th, 10 drops. Soon after dose, distension of abdomen, slight rumbling in bowels. Burning sore feeling on back of r. hand near wrist for some hours. Afterwards same sensation on l. hand.—25th, 10 drops. M., some mucous cough. Immediately after dose, the usual peculiar sensation of flatulent distension and weight in abdomen. Some relief by discharge of flatus. After dinner, weight and slight pinching in abdomen, with ineffectual urging of flatus against anus.—26th, 10 drops. Soon after

dose, pressure and rumbling in bowels. M., some mucous cough.—27th, 10 drops. Soon after dose, great flatulent distension of abdomen, discharge of much inodorous flatus. An h. after breakfast sensation of burning and twisting in stomach.—28th, 10 drops. M., mucous cough, itching in scalp, discharge of flatus; noon, weight in abdomen.—29th, 5 drops of tincture. Immediately weight in abdomen, urging of flatus against anus. After a while empty feeling in stomach.—1st March, 5 drops. After dose, weight in abdomen, discharge of flatus. Some mucous cough. Forenoon, frequent sneezing. Noon, drawing pain in both tibiæ.—2nd, 10 drops. After dose, discomfort in stomach, discharge of flatus. During d. occasional cough.—3rd, 10 drops. After dose, slight pinching, discharge of flatus.—4th, 15 drops. Immediately distension and weight in abdomen. After breakfast, slight pinching, flow of water in mouth, some transient tearing in shaft of r. ulna, also in r. tibia; attack of nausea.—5th, 15 drops. Soon, pressure and nausea in stomach; tension in abdomen; flow of water in mouth.—6th, 15 drops. After breakfast, for some time distension of abdomen.—7th, 20 drops. M., mucous cough. After dose, and especially after breakfast, nausea, very bad taste. Distension of abdomen.—8th, 20 drops. M., some burning on r. leg.—9th, 20 drops. After dose, weight in abdomen, discharge of flatus.—10th, 20 drops. After dose, pressure and weight in stomach.—11th, 30 drops. After dose, weight in abdomen.—12th, 30 drops. An hour after dose, pressure, weight and oppression of chest.—13th, 30 drops. After dose, discharge of flatus, distension of abdomen, rumbling in bowels, tearing in r. shoulder, this tearing very severe on pressure.—14th, 30 drops. M., much cough. After breakfast, rumbling in bowels, discharge of flatus.—15th, 30 drops. After dose, flatulent distension of abdomen.—16th, 35 drops. After breakfast, some pressure in stomach, rumbling in bowels, discharge of flatus—17th, 35 drops. Soon after dose, flatulent distension of abdomen.—18th, 40 drops. M., some mucous cough; flatulent distension of abdomen, discharge of flatus.—19th, 40 drops. In n. copious perspiration on legs. After breakfast, rumbling in bowels, pressure on chest.—20th, 40 drops. All forenoon, empty feeling in stomach, pressure and qualmishness in abdomen.—21st, 40 drops. M., frequent violent cough, sometimes with raising of phlegm.—22nd. Coughed much during n. The cough lasted for 14 d., gradually diminishing, and then ceased entirely, as also all the other medicinal symptoms. (*Ibid.*)

24. F. J. N. Zoth, medical student, began his trial on 14th October, with 10 drops tincture, and increased till the 22nd up to 90 drops, but observed no effects except increase of stools.—23rd, 100 drops. In 12 m. pain in sacrum as from hæmorrhoids, which gradually went off.—Up to 4th November increased the dose up to 150 drops without any particular effect.—11th, 200 drops. No effect. (*Ibid.*)

II. *Poisonings.**—1. A girl, aged 8, ate one bug-agaric in e., and six

* Many more cases might have been given if the effects of other poisonous mushrooms had been recorded. As none of these, however, have been proved, and as A. muscarius fairly represents their toxical influence, it has been thought better to confine ourselves to the effects of this species, in using which we are on safe ground.—Eds.

more next d. at 3 p.m. About 5, in moving across room, cried out that she felt giddy, and instantly fell down senseless and motionless. When carried to bed she uttered a wild cry, and her eyes looked fixed. Emetics were given without effect. At 6.15 she was stretched out in bed comatose, countenance somewhat swollen and of ghastly leaden aspect; pulse greatly intermittent and tremulous, and scarcely to be felt; eyes pulled up towards angles of orbits and fixed immoveably; occasional startings of limbs, and severe convulsive motions of head and upper part of trunk. There was complete unconsciousness. The whole body was unusually cold; heart's action greatly laboured. Cold water was now dashed on the chest. Making a sudden start, which raised her head from the pillow, she opened her eyes, and for a few seconds stared wildly around. She quickly relapsed into her former lethargic state; the convulsions became more violent, longer in their duration, and recurring at shorter intervals; and the coldness and rigidity were extreme. Stimulants were used, and cold affusion repeated; latter was followed by a violent movement of upper part of body and a wild kind of scream, and pulse became for a little more regular and fuller. A turpentine enema brought away a fœtid copious motion. Stimulants were continued, and pulse became regular, but weak and quick (above 130). After 3 h., she was put into a warm bath for 10 m., and pulse became fuller and less quick (80). Mustard was applied to stomach and soles. Soon a general perspiration broke out, and warmth of surface increased; extremities were even mo e convulsed, and muscles of calf became permanently contracted, and felt rigid and hard; but upper part of body was much less affected than at first. Pulse got quicker again, seldom continuing steady for ½ h., but breathing was natural, save for an occasional emission of a strange sound. The mustard was removed after 2 h.; some colour appeared in face, and she seemed much better; startings of limbs occurring less frequently. At midnight skin was moist, body more warm, pulse 125 to 130; in 20 m. she was in a sound sleep, breathing easily, face a little flushed, and convulsions affecting her at longer intervals. No change, save copious sweat, till 5.20 a.m., when she first opened eyes and turned them in orbits, seeming to look around her without any consciousness of perception. She then fell back again and slept till 6.45, when, suddenly starting up, she threw down the bedclothes, calling out at same time to take them off from her, and seemed quite sensible. She then vomited some of the mushrooms; asked for drink, and complained much of soreness of head and neck, so that she could not swallow. Afterwards she vomited more, and had ineffectual retching. In m. her pulse was 120, weak, but regular. Now and then during d. she had involuntary motions of legs. Thirst considerable; pulse in afternoon 110. During n. slept as usual, but with frequent startings. Pulse variable for some d. longer. (J. ADAM, *Lond. Med. and Phys. Journ.*, xxxii, 364.)

2. Dr. JOH. HEINR. BECK relates:—A schoolmaster, aged 73, drank, at 9.15 p.m., by mistake for pure milk, half a pint of milk in which was a decoction of ½ a plant of agar. musc. Perceiving his mistake he drank a quantity of warm milk, whereafter he vomited 8-9 times, and

had five diarrhœic stools. He seemed to be half stupefied, but complained of nothing but acidity, which was relieved after vomiting. He remained in this state till 4 a.m., when he became worse, and died at 5 a.m.

P.M. Skin of body yellow. Blood-vessels of scalp full of blood. All the blood-vessels of the dura mater full of dark red blood. Arachnoid red. Blood-vessels in cerebral sulci full of blood. Cortical substance of brain reddened; medullary substance studded with red points. Each of the cerebral cavities contained about a teaspoonful of bloody serum; the vascular plexuses were bright red; the vessels of base of brain distended with blood; the tentorium cerebelli very vascular; the cerebellum very soft; in the arbor vitæ an effusion of blood the size of a small bean. All the fauces, œsophagus, and trachea highly inflamed. Pleura and pericardium highly inflamed (stark entzündet). Lungs greatly distended (aufgetrieben), marbled blue, hepatized and filled with black blood. Cavities of heart filled with black fluid blood. The arch of the aorta outside and inside highly inflamed, studded with atheromatous deposits. The omentum, pancreas, peritoneum and outside of stomach and jejunum uncommonly highly inflamed, all blood-vessels filled with black fluid blood. The inside of bladder very highly inflamed.* (*Henke's Zeitsch. für die Staatsarzneikunde*, xxi, 307.)

3. *a.* Three half-starved soldiers in the retreat from Moscow in 1812 made a meal of agar. musc., which they roasted on the coals, with a little butter and salt, and ate without bread. One ate four, the two others three each. They then lay down to sleep. At 10 p.m., the first soldier commenced to speak nonsense, passing from one subject to another in a gay delirium with great loquacity. Some time afterwards he had violent convulsions. Seen soon after he was found with convulsive movements of muscles of face and extremities, the jaws were firmly clenched, he could not be got to take anything; he always wanted to talk, but could hardly articulate. His eyes rolled in their orbits, and were sometimes quite turned up. The agitation was extreme, the lower limbs strongly retracted, and the arms so agitated that his pulse could not be felt. Cold sweat on face, neck, and chest. Tip of nose and lips bluish. Some froth at the commissure of lips; respiration oppressed and noisy; breath had a sickly and sour odour. In an instant he became more calm, and the jaws were loosened. An emetic was given. He threw up much phlegm, which smelt sour, together with fragments of the fungus. He then got vinegar and water to drink. He passed the rest of the d. alternately convulsed and in stupor. The beginning of the n. was restless, but he grew quiet, and in the m. was as usual.

b. The second was attacked by convulsions soon after the first with great anxiety and pain at epigastrium, which was relieved spontaneously by vomiting. He then developed much strength with gay delirium; he sang and talked, but gave no replies to questions. He imagined himself an officer commanding at drill, and various manœuvres

* All these high inflammations must be exaggerations; probably he meant congestion or redness.—Eds.

which he thought he was conducting. The convulsions ceased for a short time, but soon recommenced; irregular and hurried movements of the upper extremities; restlessness of hands, which he pressed together as though he was rolling a soft body between his hands in order to make it round. Speaking with volubility and animation to his father and mother, as though he were beside them, giving no replies to questions, he sang and lamented alternately, embracing his comrades and kissing their hands. All this took place in the midst of a general spasm resembling trembling rather than convulsions. Half an h. later he fell into a faint, which did not last long, but left him in a deep stupor. Extreme alteration of physiognomy, general prostration, with cold clammy sweat all over the body. The scene ended in a soporous state, from which he gradually roused and recovered, but remembered nothing of what had happened since eating the fungi.

c. The third was seized with some pains which he referred to the stomach, with great oppression, then convulsive movement that lasted but a short time, but was violent, and was succeeded by a yellow tinge of the whole body, a kind of jaundice, most apparent on the face, neck and chest. Soon he vomited spontaneously a great quantity of fetid matter, and had some stools which relieved him greatly. When seen he was very feeble, pulse scarcely perceptible. The rest of the d. was found in a state of stupor and spasmodic agitation, but he slept well at n., and next d. was well. The yellow colour disappeared in a few d. (VADROT, *Obs. sur l'empoisonnement par les Champignons*, 1814.)

4. *a.* Five soldiers, after eating plentifully of the fungus, were attacked by the usual symptoms. About 5 or 6 h. after their meal they perceived the first symptoms. After anxiety, oppression, general malaise, and some convulsive movements, two of them had spontaneous vomiting, which was kept up by means of hot water. The violent symptoms went off, and there remained general prostration, stupor mingled with spasms, and later some fæcal evacuations. This state lasted 7-8 h., when they rallied, and the next d. were quite well.

b. The three others had more serious symptoms; one especially, of feeble constitution and only just recovering from an internal disease, had extreme prostration and delirium greatly resembling that of ataxic fever. Tartar emetic was administered, but the alarming symptoms persisted for a long time. The abdomen was tympanitic, he had very fœtid evacuations from the bowels, the pulse was extremely feeble, and fainting fits frequent, a soporous and spasmodic condition lasted nearly 2 d. and the convulsions were protracted; he could not go back to his military duties for a fortnight.

c. The two others had delirium, with increased manifestation of strength; the convulsions were violent, the oppression and contraction of larynx made suffocation imminent; there was very painful tension at epigastrium, frequent nausea with very violent pains in stomach, piercing cries, extreme thirst. Vomiting was artificially excited, and was followed by transient calm; then the pains returned so violently that the patient screamed out and rolled on the ground. The thirst was unquenchable, the features decomposed, the pulse imperceptible. They were taken to the hospital and given various remedies. The

pains subsided gradually, and the disease terminated in a dysentery, which, and the stupor, ended in 5 d. (*Ibid.*)

5.—*a.* Two soldiers ate the fungi for their breakfast. They were attacked at the same time with gay delirium. One was very loquacious, while at the same time he had strong convulsions of muscles of jaw and neck, particularly the r. side, which drew his head over to r. shoulder. At the same time he had successive flexion and extension movements of the lower extremities, but he was able to walk though in a singular manner; he thus marched about gaily, talking many unconnected things. To this state which lasted ½ h. succeeded a calm which was soon troubled by nausea and general malaise. He got tartar emetic and vinegar and water. The confusion of mind and quiet delirium lasted the rest of the day. He had a quiet night, and next day he had no remembrance of having been ill, but thought he had been a journey.

b. The second was delirious for a short time, but soon his gaiety was changed into suffering, and he had anxiety and a severe pain in epigastrium, oppression, faintness; vomiting, artificially excited by warm water or tickling throat, caused relief to the pain. He was extremely weak, had painful tension of abdomen, physiognomy much altered, pulse small, depressed, slimy yellow stools with tenesmus and pain. (*Ibid.*)

6. Several soldiers ate a quantity of the fungi they found in a forest. All were taken ill, some 3 or 4, others 5 or 6 h., others still longer after their meal. Those first taken ill got an emetic, and soon recovered.

a. Two had much more serious symptoms than the rest; their abdomens became distended, painful, pulse feeble, depressed, frequent successive attacks of convulsions or faintings, physiognomy much altered, breath fetid, with an acid flavour, partial cold sweats, very fetid stools. They got an ether draught, and had more stools of the same character. In the afternoon the violence of the symptoms diminished, and there ensued delirium, then a comatose state that lasted till the next d., which was passed in much the same state. In the evening the mind seemed to get right, they slept well at night, and next day were well.

b. Four others, who had eaten a large quantity, thought they were so strong that they would not take an emetic. Towards the evening they had excessive pain, anxiety, suffocation, fainting, extreme thirst, colic, small irregular pulse, general cold sweats, altered features, violet colour of the tip and alæ of the nose and also of the lips, general trembling, tympanitic distension of abdomen, evacuation of very fetid stools. They were taken to hospital, but grew worse, delirium and severe pains lasted till their death, which occurred in the course of the n.

c. P.M.—The first had ejection from mouth of frothy matter of blackish-green colour, abdomen tympanitic, stomach and intestines distended with very fetid gas, their m.m. showed signs of inflammation and gangrenous spots, the jejunum showed in several places destruction of its m.m.; stomach contained a little blackish fluid, the intestines slimy matter.

The second was in much the same state, except that the stomach showed signs of inflammatory congestion of its m.m. near the pyloric

orifice, the liver was prodigiously swollen, the gall-bladder filled with thick dark-coloured bile.

The third also showed the same changes as the first, but more marked ; there were broad gangrenous patches in stomach and intestines. (*Ibid.**)

7. The following occurred in 1853, and as far as we know is unique. The action of these unknown mushrooms resembles that of the well known amanita muscaria. Mr. C. S—, an accomplished civilian, of very temperate habits, was ordered out of the collector's court at 11 a.m., in consequence of being apparently drunk. On the following morning he was seen by Dr. Palmer, who reported as follows : "I found him in a state of great depression and distress from the recollection of the occurrences of the preceding d. He informed me he had had his breakfast as usual, had a small bottle of claret which he always took, and was not aware of having partaken of anything unusual, and certainly not to excess. That he went to Cutcherry at the usual h., and felt unable to control his actions ; felt drunk, every thing and person appeared ludicrous ; he laughed immoderately in open court, joked with the attendants, and ridiculed in an absurd way his superior officer, the collector, by whom he was taken to his house. After some h. he recovered, considerably depressed from the effects of the stimulant, and from the feeling of shame at having made such a ridiculous spectacle of himself before his court, but more so, as he assured me that this was the third time a similar attack had seized him, and he feared he would go mad, for he could not with the utmost effort control his actions, and had been seized in precisely the same manner, at the same time of the year, three years in succession."

Dr. Palmer, to console him, promised to return to tiffin, at which, among other dishes, were stewed mushrooms. Before the meal was finished he became very excited, and as he had taken very little beer and no other stimulating drink, it suddenly flashed across his mind that the mushrooms were the cause both of his own and of his friend's intoxication. His symptoms were identical with those described by Mr. S—, and were very similar to the exhilaratory effects of alcohol. Every person appeared ridiculous, the most ordinary remark was full of fun and wit, and his immoderate laughter provoked equal merriment in others. "I took (he writes) a drive in the evening, and I never before or since have seen the lights and shades cast by the setting sun so brilliant, and every object looked so perfectly beautiful. These exaggerated sensations continued for some h., until, at the request of my friend, I put an end to them by taking a full dose of ipecacuanha, and thus got rid of a considerable quantity of the fungi still undigested. I experienced no after ill effects whatever." (NORMAN CHEVERS, *Medical Jurisprudence in India.*)

a. The first two cases were those of a man æt. 60, and his wife æt. 40, who had eaten of a dish into which the fungus had been introduced. In ½ h. woman had trembling of stomach, weakness of limbs, nausea,

* Vadrot *thinks* that the fungi eaten were agar. musc., but in none of the above cases did he see the fungus that caused the accidents. Of the last he says the soldiers gathered a lot of different sorts of fungi and chose the brightest coloured, doubtless Agar. musc.—EDS.

and violent vomiting. She trembled all over and could scarcely hold anything in her hands. She grew worse, got violent convulsions in the arms, almost like electric shocks. She felt as if her limbs did not belong to her, her legs bent under her; at the same time she felt light as if she could run with great quickness. She had dazzling before the eyes, was much excited, eyeballs rolled about; vision impaired, but hearing very acute. Towards e. convulsions ceased; she had inclination to bend body backwards and forwards and to stretch; sleep restless. The man was much more ill. He had trembling, convulsions, retraction of neck and stretching of body, excitement and inclination to vomit; his mind became clouded, he fell down and appeared to be dying. Pains in limbs, impaired vision, flatulence, colic and great thirst affected both patients for 4 d.

b. The other cases were two carpenters, 70 and 50 years old, who after partaking of a similar dish of fungi were affected with the most violent brain symptoms; they cried and roared like madmen; the elder was the noisier and broke his bedstead to pieces with superhuman power. It was with difficulty that four strong men could throw the furious patients to the ground and bind them fast. In spite of an emetic the most violent clonic and tonic convulsions lasted all d. It was not until the following morning that they became quiet, and soon after this they recovered. (Quoted from *Wien. Med. Presse* in Hirschel's *Zeitschrift*, June 15, 1874.)

9. The inhabitants of the north-east part of Asia use agar. musc. in the same manner as wine, brandy, arrack, opium, &c., are used by other nations. The fungi are collected in the hottest months, and hung up in the air by a string to dry. The usual mode of taking the fungus is to roll it up like a bolus, and swallow it without chewing, which (the Kamtschatkans say) would disorder the stomach. One large or two small fungi is a common dose to produce a pleasant intoxication for a whole d., particularly if water be drunk after it, which augments the narcotic action. The desired effect comes on from one to two h. after taking the fungus. Giddiness and drunkenness result in the same manner as from wine and spirits; the cheerful face becomes flushed, emotions of the mind are at first produced, involuntary words and actions follow, and sometimes, at last, an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion; by too large a dose, violent spasmodic effects are produced. So very exciting to the nervous system, in many individuals, is this fungus, that its effects are often very ludicrous; a person under its influence wishing to step over a straw, takes a stride, or a jump sufficient to clear the trunk of a tree; a talkative person cannot keep silence or secrets, and one fond of music is perpetually singing. (LANGSDORF, *Ann. d. Wetteranischen Gesell. f. d. Ges. Naturkunde.*)

III. *Experiments on animals.*—1. *a.* Two ounces of fresh A. were beaten up with ℥ij of milk, and strained through linen. Of resulting mixture a tom cat (A) got at 4 p.m. ℥iss, a female cat (B) ℥j, and another (C) ℥ss. In 5 m. cats A and B began to mew, their gait was unsteady, they staggered, fell on one side or other, but got up again and ran from place to place. After running about in this way for ½ h. their gait became more unsteady, they fell more frequently, mewed often; then,

not being able to keep their legs, they lay on their side, mewing continuously, their limbs constantly moving as if they wished to go along. At the same time there were movements in the abdomen, sometimes it was distended, sometimes contracted, then there was retching and finally vomiting of their food mixed with mucus. Soon afterwards brown-coloured loose fæces were passed, and the cat A passed some urine. Vomiting and purging went on till 5 p.m. When the vomiting and purging ceased the limbs began to twitch, especially the hind legs, and they were often stretched out backwards. The head was bent backwards towards the spine. They often attempted to get up, but immediately fell on the other side, and after such attempt the twitching and trembling of the limbs became stronger. At 5.30 p.m. the body was often raised up without using the limbs. The mewing became less. On taking up the cat the head was bent more backwards, and it trembled and twitched more. Respiration and heart's beats were quicker, the hair stood on end and was lustreless. At 6 p.m. they ceased to mew and lay on their side, the front limbs were stiff, the hind limbs stretched backwards and the head bent so far backwards that it touched the spine. Respiration much quicker, the thorax moved little, but the abdomen moved very strongly. At 7 p.m. they lay quiet with closed tearful eyes, occasional jerkings of the limbs and through the whole body. Respiration and heart's beats very quick. At 8 p.m. the same state; when lifted, they started and began to mew. Thus they continued all n. Towards m. they became quieter, tried to raise themselves on their limbs, but were unable to do so as the trembling and jerking returned. If they succeeded in getting on their legs, these were wide asunder, and if they tried to walk they fell on their side. 11th.—The cat A was most affected, it lay all the forenoon on its side occasionally mewing, and could not get up. The jerkings of the limbs and the movements of the front legs as if to get along increased. The hind legs were often stiff, sometimes stretched out backwards, at others drawn up towards the belly, when the back was very much bent, and the body with the head bent back was curved like the letter S. Towards noon the movements of the forelegs became stronger, it endeavoured to get along, and moved itself on its side about in its cage. It often lay exhausted with its efforts to move and mew, then the head was moved up and down, the limbs jerked and trembled, the eyes were dazed, the temperature lowered, the feet cold. Hair on end and lustreless, heart's beats very quick. No stool since yesterday. Urine passed once. At noon it got another ounce of the mixture. At 1 p.m. it lay with the hind legs close up to the belly, extremities cold and jerking frequently. It lay as if dead, the neck stiff and stretched out forwards, eyes dazed, resp. very quick, heart's beats trembling. At 2 p.m. a liquid black stool. At 6 p.m. lies as if dead, the body all cold, heart's beats scarcely perceptible, rare jerks in the hind legs. All night it continued in this state. 12th.—Morning, lay as if dead, quite cold, resp. very quick and short, died at 9 a.m. P.M. 4 h. after death. Vessels of the dura mater filled with black blood, nothing observable in brain. Lungs of black-blue colour, friable, and when cut into much black frothy blood escaped. Both auricles of heart filled with black coagulated blood. Stomach considerably distended with air and digested food. The m. m. was red, very friable, and easily separated from the muscular coat. Vena portæ swollen and contracted so that the smallest sound could scarcely get through it. Small intestines very vascular and contracted. Their m. m., reddened in places, contained a yellow slimy fluid. Large intestines blackish outside and inside, contained much air, the rectum full of hard fæces. Liver friable and full of blood, bladder empty, spinal cord normal, only its membranes in the lumbar region redder than elsewhere.

The cat B could scarcely keep on its feet all the forenoon, if she walks a few steps she staggers from one side to the other; the hind legs give way and she falls down on them, at the same time head and fore part of body are constantly moving from side to side as though she would fall. She does not mew, but cannot rest in one place, and tries to get along; the heart's beats and resp. quickened, hair lustreless and on end, will neither eat nor drink. In the course of the d. her gait became more steady, in the e. she ran about for some time and then suddenly fell upon her hind legs. No stool, but urinated several times. In the e. she ate meat and milk. The following d. she was quite well and remained so till 18th when she got ½ oz. of the above mixture. Soon the l. hind leg was forcibly stretched out backwards for a few minutes. Soon afterwards the l. foreleg was suddenly lifted up, the flexor muscles contracted so that the toes touched the back of the foot. This lasted a few minutes.

The movements of the hind legs were repeated at longer or shorter intervals for ½ h., then there ensued retching and vomiting of phlegm mixed with the medicine. The vomiting was violent and repeated thrice in a short time; about a tablespoonful was thrown up. She soon began to jump about. This lasted ¼ h., then she fell down on her hind legs. The belly then was violently contracted and she passed a firm black-brown fetid stool. While sitting thus the l. foreleg was jerked up, the paw bent inwards, then again stretched out. In the intervals the fore part of the body moved from side to side. All at once the back part of the body was jerked up, the legs twitched, and she began to run about, and then fell on her side, and with difficulty she attained again the sitting position with her legs widely separated. In this position she swayed from side to side. Whenever she attempted to rise the hind legs gave way, and she fell on her side. She mewed constantly and was very restless. The hair on end, the eyes dazed, resp. and heart's beats quickened. So she continued till 4 p.m., when she again commenced to run about but unsteadily. She had a fluid black stool. No urine passed. She could not eat. At 8 p.m. she was lively, lapped some milk, and became quieter. She did not mew much and the night was quiet.

The cat C, which got ½ oz., had the same symptoms.

On the 19th, both cats were pretty lively, but their gait was unsteady, and their movements hurried; when they attempted to leap up on a stool, they jumped too high and fell off it. They ate enormously. On the 20th they were both quite well. So they remained till the 12th November, when they both got at 8 a.m. 100 drops of tincture. Soon after they retched and vomited their food mixed with much yellow mucus. Then they became quite well. At 2 p.m. they again got 100 drops. Much white foam came from their mouths. The cat B passed a considerable quantity of urine, fell on its l. side, the limbs trembled, the resp. and heart's beats became always quicker, and she was dead in ¼ h. The P.M. after ½ h. showed the vessels of the dura mater full of black blood, brain normal. At apex of l. lung a black spot the size of sixpence. Over the root of the lungs, especially in front, were many black points the size of pin's heads, which exuded black fluid blood when cut into. The auricles of heart and large vessels filled with black coagulated blood. Liver friable and full of blood, gall-bladder large. Stomach distended with air, empty. The m. m. of stomach towards pylorus deep red and swollen. All the intestines distended with air. The small intestines contained slimy greenish-yellow fluid, the large intestine some pale yellow mucus; bladder empty, kidneys normal. The dura mater of spinal cord towards pelvis redder than normal. Spinal cord normal.

The cat C soon after getting the agar. sought the warm stove and sat there sad, with head hanging down, sometimes mewed for several minutes at a time. At 5 p.m. she vomited yellowish-green saliva. Gait unsteady, walks with legs wide apart and staggers first to one then to the other side, as though she would fall. The hind legs seem the weakest. Half-an-hour after vomiting, when walking she was violently thrown on the l. side. She got up and had violent retching for ½ h. She then attempted to walk but fell forwards on her head or on one side or other. Resp. and heart's beats very quick, hair lustreless and stands out like bristles. On 13th she was sitting sadly in a corner, with eyes gummed up and swaying from side to side. 200 drops were administered. On this she jumped forwards a few steps and fell down dead. P.M. 6 h. after death. Vessels of dura mater filled with black blood. Upper lobe of r. lung blackish, much frothy black blood escaped when cut into. Rest of lungs normal. Much black coagulated blood in large vessels and auricles of heart. Stomach distended with air, its m. m. reddened; intestines contained air, yellow slime, and some thread-worms. Liver large, friable, and full of blood. No other changes observable.

b. A male and a female rabbit were experimented on. Various dilutions were given without effect. On 30th Oct. both got 100 drops tincture. All day they were lively, and ate well, the female passed urine frequently and copiously. 31st.—Both got same dose. While getting it they foamed at mouth, no other effect observed. At 1 p.m. again 100 drops. At 2 p.m. they sat sad in their cage, would not eat, and had jerkings in the limbs. In afternoon they ran about as usual; both passed but little urine. In the e. the female was allowed to escape. She was found dead in a meadow a week afterwards. 1st Nov.—The male got at 8 a.m. 200 drops tincture. All day he sat sadly in a corner and his hind legs jerked much. In walking he dragged the hind legs. Forenoon and afternoon had a watery and slimy stool, and urinated frequently.

Fur lustreless and ruffled. Resp. and heart's beats quickened. 2nd.—He got 400 drops which caused the mouth to froth, jumped about as if intoxicated, jerked several times his hind legs and was dead. P.M. ½ h. after death. Vessels of dura mater filled with black blood; surface of brain showed many vessels filled with dark blood, and black points appeared in substance of brain when cut into. Lungs normal, large vessels and auricles of heart filled with black coagulated blood, ventricles empty. Stomach distended with air, its surface and that of intestines showed vessels full of dark blood, they contained yellowish-brown, greasy slime. M. m. of stomach and bowels reddened with many black points, size of a pin's head. These black points seemed to be gangrenous desquamation of m. m., destroying it down to muscular coat. Around these points the m. m. eroded. Rectum blue-black and empty. The dura mater of spinal cord about pelvis was redder and some of its vessels distended with dark blood. Spinal cord itself normal.

c. Two 7 weeks old pointer pups, both males. Dilutions had no effect. 3rd Nov., at 8 a.m., both got 100 drs. tincture, in milk. No effect. At 9 a.m., again 100 drops. After this they had cough and retching, and ½ h. later vomited the medicine with much mucus, which ended the retching. They sought the heat of the stove and lay till e. without eating. Whilst so lying there were occasional slight twitchings of limbs. E. they ate ravenously, but would not touch milk. 6th.—Quite lively, at 8 a.m. they both got 100 drops. Frothed at mouth when the drug was given. In ½ h. empty eructation for an hour, then vomiting of brown fluid. The rest of the day they lay apparently asleep, and had slight jerkings of limbs. E. ate well, had normal stool, and next m. were quite right. The same dose was given four successive days with the same effects. 11th, 8 a.m., each got a clyster of 200 drops in water. They now had urging to stool, and the clyster was expelled. After ½ h. dog No. 1 began to whine, ran about room for ½ h., lay down and slept. Dog No. 2 after the evacuation let his head sink and seemed to fall asleep, sitting on hind legs. In ½ h. he lay down and slept. At 10 a.m. dog No. 1 started suddenly from his sleep, coughed a few times, retched, and then went to his bed. The same happened to No. 2 a little later. At 11 a.m. the clyster was repeated. Soon afterwards urging to stool and evacuation of a blackish-yellow slimy fluid, less than the clyster. In a short time the hind legs seemed paralysed and they sat down. On being urged to move they could with difficulty move hind legs, frequent retching and urging to stool, which only resulted in passing a few drops of brown slimy fluid. At 2 p.m. the same clyster. In 5 m. the clyster was evacuated and then urging to stool without result. All the rest of the day they remained sitting as they were not able to stand on hind legs. They ate ravenously. Empty retching and urging to stool without result occurred frequently during afternoon. Urination normal. 12th.—Hind legs still rather unsteady in m., all right in e. 13th.—Quite right. 14th.—400 drops given by mouth; this caused much frothing in mouth and short cough. At 10 a.m. 200 drops. Much frothy saliva, coughing and retching. Soon afterwards quite unsteady, the back part of body swayed from side to side, the hind legs seemed as if paralysed, they generally maintained the sitting posture. 1 p.m., 200 drops. Great empty retching often repeated during afternoon. When seated the forelegs were wide apart, the head swayed about; when lying they had jerkings in limbs. By e. they were again lively and next m. quite well. 15th Nov.—They got three times 200 drops. The same array of symptoms followed.

d. Two pigeons, a cock and a hen, were fed from 9th to 14th December with barley that had been soaked for 24 h. in concentrated agar. tinct. No effect. 14th and 15th.—10 drops given by beak; no effect. 16th, 8 a.m., each got 20 drops. Soon they made a noise between coughing and retching. In ½ h. they walked unsteadily, fell forwards on head or on one side or other; they got up again immediately and ran about staggering as if they could not rest anywhere. From 10 till 10.30 the cock lay on its side, but got up when one attempted to seize it. At noon they went into a corner, hung their head, and would eat nothing. In the night they recovered, walked steadily, but could not eat. 17th, 8 a.m., 30 drops. Soon, gait unsteady, they staggered and fell on one side or other, but instantly got up again, eructated air as if they would eject the drug, sat sadly in a corner, or ran about the room staggering. Thus they continued till 3 p.m., they then went into a corner and remained there till the 18th, m. From 18th till 22nd they got daily the same dose with the same symptoms. On 22nd the hen died, and on the 23rd the cock. P.M.

of hen after 4 h. Body emaciated, crop and skin covering it very full of blood-vessels filled with dark blood. Crop empty, its lining membrane of whitish-yellow colour, of greasy feel, easily separated from muscular coat, which latter was redder than normal. The passage from crop to gizzard was red and full of congested blood-vessels. The gizzard full of sand, its lining membrane dark green. Upper half of intestines brownish yellow, containing an acid green slime, with white things the size of a hemp-seed. The lungs sometimes coloured, and containing little red froth. Auricles of heart and large vessels filled with black coagulated blood. Liver friable and blackish. Vessels of dura mater full of black blood, brain and spinal cord healthy. P.M. of cock gave precisely similar results.—(*Zeitsch. des Ver. d. hom. Aerzte Oesterreichs*, ii.)

Muscarinum.—An alkaloid obtained from Agaricus muscarius, and also prepared artificially. Its formula is $C_5H_{13}NO_3.H_2O$.

I. *Provings*.—1. RINGER and MOREHEAD experimented on four men, giving gr. $\frac{1}{3}$ or more to each hypodermically. Three of their patients were delicate and anæmic; the fourth had slight fever from some obscure cause, though his pulse was not quickened. Dr. Ringer presents their results as follows:

a. Perspiration.—Sweating occurred in eleven out of the thirteen experiments. Half a grain always made it free, whilst large doses—as gr. $\frac{3}{4}$ and 1—rendered it very abundant, indeed, it was quite as free as the perspiration excited by gr. $\frac{1}{3}$—$\frac{1}{2}$ of pilocarpine. Sweat stood in large drops on forehead after larger doses, nightdress became soaked and skin felt sodden. In one man only was perspiration absent, salivation taking its place. Sweating began in 3—15 m., occurring earliest after larger doses, and lasted for $\frac{1}{2}$—$1\frac{1}{2}$ h. Reaction of sweat in 6 cases was neutral in 4, alkaline in 2.

b. Salivation occurred in 9 experiments, in 3 slight, in rest free or profuse; began in 2—15 m., lasted for 20—80 m.

c. Lachrymation occurred in 8 cases, amounting in some merely to suffusion of eyes, but generally tears trickled down face, so that patient was obliged to wipe eyes. Began 6—10 m., lasted 20—30 m.

d. Purgation.—In 2 instances drug excited inclination to stool; in 4 experiments on same man it produced a loose motion, one of a greenish colour, though bowels had been opened naturally a short time before. This effect followed in 10—20 m.

e. Pulse in one of the four men was always very quick, in other three natural. In latter little change occurred, in one experiment only rate falling by 10—16 beats. Quick pulse was reduced from 120 to 80 or 60. Larger doses rendered pulse softer and more compressible.

f. Respiration.—Unaffected in every experiment.

g. Eyes.—Pupils always (15 m.) contracted, often considerably; vision unaffected. Applied to eyes muscarine causes wide dilatation of pupil, beginning in 15—45 m., and continuing about 24 h. Sight here also little affected.

In 3 experiments on one man larger doses induced vomiting once, nausea once. In 5 experiments patients were obliged to pass urine in 9—15 m. after injection, and 2 complained of supra-pubic pain. In 5 drug produced a frequent hacking cough. In no case did headache or other nervous symptoms occur. (*Handbook of Therapeutics*, 10th ed., p. 502.)

2. SCHMIEDEBERG found 5 milligrammes produce in the human subject myosis, loss of focalising power, abundant secretion of saliva, determination of blood to head, flushed face, perspiration over whole body, giddiness, anxiety, griping and rumbling in bowels, and weight in head. (VON BOECK, in Ziemssen's *Cyclopædia*, xvii, 930.)

III. *Experiments on animals.*—1. *a.* The symptoms produced by muscarine in animals entirely correspond to those which poisonous fungi produce in the human subject. In cats we observe increased salivary secretion, vomiting, diarrhœa, rumbling in the bowels, staggering gait, contraction of pupils, frequency of respiration, dyspnœa. The vomiting and diarrhœa subside, respiration becomes less frequent, convulsions set in, respiration ceases, death supervenes.

b. The intestine, under the influence of musc., becomes subject to tetanic contractions, to which the diarrhœa (or constipation), abdominal pains, &c., are traceable.

c. The influence of musc. on the heart and its contractions is very remarkable. When we inject gr. $\frac{1}{120}$ subcutaneously into a frog, or bring a solution into direct contact with the heart, this organ is almost immediately arrested in diastole. But if during this suspension of cardiac action, we irritate the heart in any way, it contracts—a proof that the cause of the cessation does not lie in the cardiac muscle. Section of the vagi has no effect upon this inaction of the heart caused by musc., therefore the inhibitory organs residing in the heart itself are strongly excited by the drug, and this excitement is powerful enough to counteract all the contractile power of the heart. (It is these same inhibitory organs which are paralysed by atropine.) This influence of musc. must produce an initial retardation of the heart-stroke.

d. In the early stage of the action of musc. respiration is more frequent and laboured than in the natural condition; later on there is a steady diminution of its frequency, till at last it ceases altogether. These symptoms of the respiratory apparatus proceed from an initial excitement and subsequent paralysis of the central organ in the medulla oblongata which governs respiration.

e. The blood-vessels are constricted for a short time in the outset of musc. action, and afterwards dilated. The vascular dilatation, combined with the diminished frequency of the cardiac pulsations, causes a decrease of blood pressure, amounting sometimes to one-third of the total amount.

f. The flow of saliva which attends musc. poisoning is the consequence of an exciting influence exercised by musc. upon the peripheral extremities of the secretory nerves; at least we are led to this conclusion by the circumstance that section of these nerves does not affect the secretion of saliva.

g. Krenchal has published (*Arch. f. Ophthalm.*, xx, 1, 135) a very good report of the changes in vision produced by musc. Even small doses lead to disturbances in the accommodating power, which are characterised as "accommodation convulsions." With somewhat larger doses a not very marked myosis sets in, dependent on excitement of the sphincter iridis itself, or on that of the oculo-motor nerve which

governs it. The hypothesis of paralysis of the dilator pupillæ or of the sympathetic nerve connected with it is inadmissible. (*Ibid.*)

2. Schmiedeberg had noticed that intense dyspnœa was one of the most marked symptoms produced by musc. He had not, however, attempted to explain it. He had observed that during the dyspnœa the arteries contained very little blood, and when cut across bled hardly at all. Desiring to ascertain the causation of this, Dr. Brunton thoroughly narcotised a rabbit with chloral, commenced artificial respiration, and opened the thorax. All was proceeding quite naturally until he introduced a little musc. into the jugular vein. "At once everything changed. The lungs became blanched, the l. side of the heart small, the r. side swelled up, and the vena cava became greatly distended." A little atropine restored the normal state of things. (LAUDER BRUNTON, *Brit. Med. Journ.*, 1874, ii, 617.)

3. *a.* PREVOST found action of musc. on heart unmodified by destruction of nervous centres or by curare. There was no change in breathing in the frogs he experimented on, but in higher animals a violent dyspnœa was induced. He found even a feeble dose produce abundant salivation and lachrymation; former occurs quite as much after section of lingual or removal of superior cervical ganglion. Musc. excites the vermicular contractions of the intestines; he has seen hernia of the stomach drawn in under its influence. (*Gaz. Med. de Paris*, 1874, p. 243.)

b. Same experimenter has subsequently found that the hepatic and pancreatic secretions are increased by it, but the renal diminished. (*Comptes rendus de l'Acad. de Méd.*, Aug. 10, 1876.)

4. RINGER and MOREHEAD find that if the intra-cardiac inhibitory centre (sinus venosus) is removed and musc. is then applied to the ventricle, it weakens and paralyses the heart, acting apparently on both the cardiac excito-motory apparatus and the muscular substance itself. (*Journ. of Phys.*, ii, 234, and *Pract.*, xxvi, 4. In *Journ. of Phys.*, iii, 59, Gaskell confirms direct action on muscular substance.)

AGNUS CASTUS.

Vitex Agnus-cástus, L. Nat. Ord., *Verbenaceæ.* Chaste-tree.

I. *Provings.*—1. HAHNEMANN. Frequent hiccup, with cross disposition, inclined to anger; pinching in epigastrium when sitting bent forwards; soft stool for some days, then costiveness; when straining at stool, escape of fluid from urethra; a kind of yellow discharge from urethra; itching all over genitals, compelling scratching; cough in bed at n.; pressure on sternum, especially on breathing deeply; she starts sometimes in sleep, as if from affright, and wakes up; anxious, unremembered dreams; disposition as if he had lowest opinion of himself, when he wished to be quit of this feeling and rather to be dead,—at this time no courage to do anything; when not in state just mentioned he is in one of over-excitement, would like to declaim, &c. (*Archiv*, x, 177.)*

* This is a schema of symptoms stated to have been "observed" by the physicians mentioned, but without information as to circumstances or mode of proceeding.—EDS.

[illegible] grammes produce i[illegible] powerful powers, abundant secret[illegible] flushed face, perspiratio[illegible] in bowel[illegible] Zemssen's *Handb.*, xvii, 93[illegible] The symptoms [illegible] correspond to those whi[illegible] we obse[illegible] in the bo[illegible] frequency of respiratio[illegible] respiration becomes [illegible] death supervenes.

[illegible] the influence of muscarine becom[illegible] constipatio[illegible]

[illegible] the heart and its contra[illegible] simultaneously i[illegible] with the heart, this or[illegible] But if during this s[illegible] the heart in any way, it contr[illegible] the cause of the [illegible] does not lie in the car[illegible] effect upon the inhibition of the [illegible] organs residing in th[illegible] excitement [illegible] the contractile power of the l[illegible] organs which are paralysed by atro[illegible] retardation o[illegible]

[illegible] of the action of muscarine respirat[illegible] the natural conditions late[illegible] at last it ceases [illegible] apparatus proceed fro[illegible] of the central organ in [illegible]

[illegible] for a short time in[illegible] afterwards [illegible] The vascular dilat[illegible] of the cardiac pulsatio[illegible]

2. Frank. Constrictive pain in head above temples, on reading; first pin-pricks, then pricking itching on hairy scalp and face, momentarily removed by scratching; eyes are misty and as if watery (in room); smarting stitches in r. eyeball, going off on rubbing eyes; hard pressive pain, as from stone, from nose to r. eyebrow, going off on pressure (30 h.); coppery taste; nausea, first in stomach, then (with sinking) in abdomen, while standing; in flesh near anus, a spot with sore pain when walking, not when sitting; tingling in r. index; cramp-pain in l. thigh, externally and superiorly, only when walking; at top of calf sensation as if skin internally were drawn by a thread; on r. tibia, when standing, a pressive pain; violent stitches in l. big toe, so that whole limb jerks; sleep very restless, with constant dreaming; heat of face and dryness of mouth for 1 h., afterwards thirst; before heat, sweat on l. hand, especially between fingers, in open air; melancholy disposition all day, self-absorbed, discontented with himself, incapable of any occupation, quite insensible to external things, and absent-minded over work. (*Ibid.*)

3. Gauer. Confusion of head, like general drawing there; heaviness of head, with pressure in nape, head feeling as though it would sink forwards; tearing in l. temple; tensive tearing in forehead (½ h.); pressive tearing in l. frontal protuberance; eroding itching on various parts of hairy scalp, face, and throat; horripilation of integuments of head, with simultaneous tension therein, but they feel warm; very dilated pupils, all d.; tearing in r. zygoma, and formication on r. cheek making him scratch; tearing in r. ramus of lower jaw; loathing for all drinks; feeling of nausea at pit of stomach; wandering pressure and cutting in upper abdomen, and just above l. ilium; intense, deep, sharp stitches at anus in coccyx, and obtuse ones to l. of sacrum; quivering in muscles of anus; eroding itching on perinæum and penis; pressure in ensiform cartilage just above pit of stomach; eroding itching on nape, behind axillæ, and in various other places, temporarily relieved by scratching; obtuse or sharp stitches in several regions of limbs; pulse 60 only, and less palpable; constant trembling of whole body from internal chill, while surface feels warm; or alternations of heat and cold, without thirst, hands only feeling cold. (*Ibid.*)

4. Herrmann. Vertigo, as if all went round in a circle (some min.); aching tearing in temples and forehead, also within brain, aggravated by movement (2 h.); pressive tearing on l. parietal bone, aggravated by touch or movement; thirst, absent after 6 h., became great after 30 h.; hard pressure in hepatic region, aggravated by touch; urination frequent and copious during whole proving, urine rather light-coloured; frequent erections; hard pressure above r. nipple, aggravated by expiration and touch; pressive tearing in r. shoulder-joint, a pain as of dislocation, aggravated by movement and inspiration (3 h.); hard pressure in r. axilla (½ h.), in upper arm (¼ h.), aggravated by touch; pressure in r. elbow, aggravated by movement (13 h.); jerking in same, going off on moving arm; paralytic pain in l. wrist, only observed when turning hand; paralytic jerking drawing in metacarpal bone of l. index, aggravated by touch; pressure and shooting in thumbs; shooting tearing in and about r. hip-joint, aggravated by every movement, easier when at rest, and then more a pressive tearing, with exhaustion and weariness which compel him to sit down,—a kind of dislocative pain (36 h.); similar sensations in both knee-joints; paralytic jerking drawing in muscles of l. leg, extending from knee to foot, unaffected by walking or touch (6 h.); intermittent sharp stitches in ankle (7 h.); sense as of a weight on instep of r. foot, pressing it down, in every position; tearing in joints of toes, worse on walking; obtuse intermittent shooting on sole at heel, unaffected by touch or walking; fine shooting tearing in both soles; itching pricking on various parts of body, compelling scratching; chill, without thirst or subsequent heat; after 50 h. chill and shivering, followed in ¼ h. by heat, and this alternation repeated several times, without thirst. (*Ibid.*)

5. Stapf. Confusion of head over eyes;* excessive distraction, absence of mind, forgetfulness, *e. g.* when playing cards, which he usually did well, he did not remember what had been played, or know what he ought to do; roaring noise in ears; itching pricking in inguinal region, making him scratch; weakening of the

* This is said to have occurred "in a young man suffering from weakness of genitals." It does not appear whether other symptoms credited to Stapf were observed on this subject; but some of those of the sexual organs must be taken with reserve on this account.—Eds.

usually very strong sexual power; penis small and soft (some h.);* at n. testicles feel cold, without inward cold feeling; the usual strong m. erection with desire for coitus does not occur, next d. the parts are soft and unexcitable; after 20 h. uncommonly strong erections without cause and without amorous thoughts, accompanied by a kind of lascivious rage (without tendency to emission), causing him to clench teeth (for ½ h. before rising in m.); on 3rd d. erections and sexual desire returned, and later were much increased, with voluptuous sensation in all genital organs;† shooting in spot of l. foot externally, when standing still; at n. in bed, heat all over body like a flash of fire, at same time cold knees. (*Ibid.*)

6. HELBIG. Though fæces are not too firm, they are passed with difficulty in spite of all pressing, seeming as though they would slip back again; shooting in fingers of one hand, e. (5th d.); feeling as if bruised in all limbs. (*Heraklides*, i, 45.)‡

7. S. W. There is something before ears, he does not hear well; disordered stomach,—he relishes his food, but feels ill and uncomfortable after it, as though he had eaten too much; much sneezing, with dryness of nose; something like viscid phlegm stands in his throat, he cannot get it up; creaking in dorsal vertebræ. (*Ibid.*)

8. A. She is in very sad humour, and says repeatedly that she shall die soon. (*Ibid.*)

9. The following symptoms are anonymous:—Reading is difficult, he has to go over many passages twice, and is only willing to read what is easy to be understood, being unable to fix his attention; for several d. a pain, rather smarting than shooting, on r. vertex, as if in bone, from behind forwards, ending at angle of forehead, chiefly in m. hours, but not absent at n.; a pain in temple going towards eye, increased by touch, as if she had had a hard blow; eyes burn in e., while reading; teeth are painful when warm food or drink touches them; mouth very dry, saliva sticky and viscid so that it can be drawn out in threads, velum palati and uvula are scarlet-red, scraping in throat causing him to cough, phlegm expelled also viscid; appetite actually increased; stool thinner and lighter-coloured than usual, with dull pain in belly; several diarrhœic stools (1st d.); urine more copious and expelled with greater force; after micturating, disagreeable sensation at back of urethra; painful erections in m. (14 h.); extreme flaccidity of penis, and insusceptibility to what would ordinarily cause erection; the emission of semen occurs without ejaculation, the semen has little smell and is in small quantity (4th d.); his voice is veiled and toneless; dull pain within chest; a finger-joint swells, with gouty, tearing pain; shooting above r. crista ilii, near spine; tearing in lower limbs for ½ h.; feet are easily sprained while walking on pavement (m. of 5th d.); itching over body, especially up back, as from running of fleas; he soon falls asleep in e., and, contrary to custom, only wakes up in m. (*Ibid.*)

10. In order to pass childless married life, a man took for three months, m. and e., twelve seeds of Agnus castus; thereby he was so weakened that he not only felt an obstacle to erections of penis, but—as he wished—he lost his semen entirely and never begot children. (LINDROW, *Venusspiegel*, p. 119.)

11. It causes in some very strong sexual desire. (S. PAULLI, *Quadr. Bot.*, p. 189.)

12. Considerable heat in l. concha. Confusion of head. Agreeable increased heat in l. hand and forearm (after ½ h.). Weak erections, without sexual excitement (after 5 to 6 h.) Deceptions of olfactory sense, sometimes he fancies a smell of musk, sometimes of herring, though neither is near him (1st d.). Crawling feeling in testicles (m., 1st and 2nd d.). Some red itching spots on inner surface of l. forearm, which soon disappear. Drawing up along spermatic cords (1st d.). Diminished sexual appetite, but after coitus feeling of lightness in body (2nd n.). Fine pricks in r. iliac region (after 12 h.). Painful drawing in region of l. parotid gland (after 9—12 h.). After dinner slight pressure in upper abdomen (1st d.) Rumbling in bowels

---

* To this, in the pathogenesis of A. c. in his *Beiträge*, Stapf notes, "primary action, in a healthy man."—EDS.

† To this is noted, "Heilwirkung," and it might be a clinical symptom of a patient; but "Heilwirkung?" is appended to the previous symptom, which seems undoubtedly Stapf's.—EDS.

‡ This also is a schema without information.—EDS.

without pain (1st d.). Drawing pain in metacarpal bones (1st d.). Frequent erections, during which the penis sinks more than usual, with voluptuous sensation (4th, 5th, and 6th n.). After coitus the same n. an emission and long-continued erections. (SEIDEL, *Archiv*, xiii, 2, 186.)*

AILANTHUS.

Ailanthus glandulosa, Desf. Tree of heaven. Nat. Ord., *Simarubaceæ*.

I. *Provings.*—1. *a.* Dr. GIRAUD took 2 spoonfuls of an infusion of the bark. After ¼ h. nausea, with anxiety, worse than that caused by ipecacuanha; also sense of tightness in temples. Symptoms increased after ½ h. to vomiting (sour); pulse had now risen from 68 to 76, temp. from 37·2° to 37·3°. After this peculiar sensation of emptiness in stomach; pulse, 1 h. after dose, 80, temp. 37·7°. In ½ h. fall of temperature to 37°, and of pulse to 64; sense of coldness over whole body. After a few h. colic followed by soft stool.

b. On another occasion, after same, pulse being 78, there was no nausea, but after ¾ h. pulse was 70, with a sensation of coldness; later pulse rose to 76 again. After 4 h. some colic and soft stool. (*Allen's Encyclopædia*, x, 643: from thesis by GIRAUD, not accessible.)

2. Dr. ROBERT took same. Found it extremely bitter, causing nausea, sometimes vomiting. After 1 h. pulse fell 10 beats, remaining thus for ½ h., after which it became somewhat more frequent than usual. (*Ibid.*)

3. Dr. HETTET reports as effect of eating fragment of bark, general malaise, sensation of feebleness, dimness of vision, vertigo, cold sweat, and nausea. (*Ibid.*)

4. P—, a student of medicine, æt. 19, in good health. Took 1 dr. of 1st cent. dil. every h. from 8 a.m., March 4th. 10.0. Lancinating pain through both temples, and fine pricking pains in temple. Burning in and darting pains through stomach. 12.0. Tired sensation of lower limbs, chills over whole body as from water, and sharp pains through both lungs. 1.0. After dinner, sinking feeling in stomach. 3.0. Severe constriction of throat. 8.0. Sharp pricking pain in stomach and temples. 5th.—10 a.m. Aching in l. lung; discharge of bright red blood from nose, which was swollen. 11.0. Severe nausea, as from fat meat. 1.0. Sharp pains through both temples. 3.0. Lancinating pains through whole lower limbs. 6.0. Throat feels very full. 6th, 7th, and 8th. No new symptoms. 9th.—9 a.m. Bleeding from nose and sharp pains through both lungs; worse when taking long breath. 12.0. Mouth very sore, and feels raw and burning, as if from presence of acid. 1.30. Lancinating pains in both temples, and deathly faintness of stomach after dinner, lasting 1½ h. 4. Sensation as from a blow in r. ear. 6.30. Trembling of legs. 10th.—8 a.m. Mouth sore and raw, and oozing of blood from denuded surface. Faint feeling, with nausea. Sharp pains in both lungs, and in stomach, as from pins. 12.0. Ringing in r. ear. 2.0. Bruised sensation on r. forearm. 5.0. Mouth very sore and painful, discharge of blood from the swollen

* Also without explanation.—EDS.

gums. 12th.—8 a.m. Dryness of mouth, and bleeding from roof and sides. Nausea in abdomen. 10.0. Sharp pain through r. temple, with nausea. 3.0. Pricking pain through l. lung. Trembling of legs. Ringing in ears like music. 15th.—8 a.m. Mouth continues very sore, with discharge of blood and stringy saliva. Teeth feel as if he had taken acid in mouth. 10.0. Pains in lungs return, and trembling of legs and bruised sensation of r. forearm. Constriction of throat, with sensation of foreign body there for about 10 m. after every dose of medicine. Took same doses up to 25th, with no new symptoms. (*Publ. of Mass. Hom. Med. Soc.*, iv, 120.)

5. In proving the Ailanthus, I procured the flowers just before maturity, had them carefully dried, and of these made a tincture of about ℥j to the pint. I first took it myself, in drop-doses, 4 times a d., for 3 weeks, noticing only the distinct and decided symptoms, and was then compelled to take an antidote. I then gave it to 2 young men, one of bilious, the other of lymphatic temperament, neither of whom knew what they were taking, or what effects I was looking for. The principal symptoms corresponded perfectly, though one refused to take it after a few days' indisposition. They each made only one trial, continuing it about 2 weeks. On myself I have tried it on 3 different occasions, with nearly a year intervening between each trial, and each continuing more than three weeks. My last proving was with the 1st dil., and the effects were quite as well marked as those of the tincture. Each time I have been compelled to suspend the doses after the 3rd week, and twice to antidote its action by nux vomica, as, by that time, the throat, lungs, eyes, and head (I mention them in their order of being affected) were suffering severely. I have only noted such symptoms as were common to each of the provers, and have excluded all which did not seem to be caused by the action of the drug. The symptoms which are most positive are printed in italics.

a. General Symptoms.—Feeling of uneasiness, and aching restlessness in limbs; *electrical thrill extending to ends of fingers;* heaviness of extremities; peculiar feeling of emptiness in stomach; languor and lassitude on making exertion; tottering gait with inclination to stagger—requires extra effort to walk straight; incapability of standing long at a time.

b. Head.—Vertigo, especially when stooping; headache; *darting pain in back of head*; beating in occipital arteries; feeling as if electrical currents were passing through l. side of head; catarrhal obstruction as from cold in head; *thick, heavy feeling, as in base and r. side of the head;* tender bruised feeling over parieto-frontal sutures; dizziness and confusion of head; inability to guide feet; staggering dizziness when rising or moving.

c. Emotive Sphere.—Low-spirited; continued sighing; restlessness; confusion of ideas; inability to concentrate mental effort; compelled to read a subject several times, to get a misty understanding of it; recklessness in regard to present or future events; stoical indifference to what happens.

d. Sentient Sphere.—Loss of memory; mental alienation;*

* This must have been something quite temporary and superficial.—Eds.

gums. 12th.—8 a.m. Dryness of mouth, and bleeding from roof and sides. Nausea in abdomen. 10.0. Sharp pain through r. temple, with nausea. 3.0. Pricking pain through l. lung. Trembling of legs. Ringing in ears like music. 15th.—8 a.m. Mouth continues very sore, with discharge of blood and stringy saliva. Teeth feel as if he had taken acid in mouth. 10.0. Pains in lungs return, and trembling of legs and bruised sensation of r. forearm. Constriction of throat, with sensation of foreign body there for about 10 m. after every dose of medicine. Took same doses up to 25th, with no new symptoms. (*Publ. of Mass. Hom. Med. Soc.*, iv, 120.)

5. In proving the Ailanthus, I procured the flowers just before maturity, had them carefully dried, and of these made a tincture of about ℥j to the pint. I first took it myself, in drop-doses, 4 times a d., for 3 weeks, noticing only the distinct and decided symptoms, and was then compelled to take an antidote. I then gave it to 2 young men, one of bilious, the other of lymphatic temperament, neither of whom knew what they were taking, or what effects I was looking for. The principal symptoms corresponded perfectly, though one refused to take it after a few days' indisposition. They each made only one trial, continuing it about 2 weeks. On myself I have tried it on 3 different occasions, with nearly a year intervening between each trial, and each continuing more than three weeks. My last proving was with the 1st dil., and the effects were quite as well marked as those of the tincture. Each time I have been compelled to suspend the doses after the 3rd week, and twice to antidote its action by nux vomica, as, by that time, the throat, lungs, eyes, and head (I mention them in their order of being affected) were suffering severely. I have only noted such symptoms as were common to each of the provers, and have excluded all which did not seem to be caused by the action of the drug. The symptoms which are most positive are printed in italics.

a. General Symptoms.—Feeling of uneasiness, and aching restlessness in limbs; *electrical thrill extending to ends of fingers;* heaviness of extremities; peculiar feeling of emptiness in stomach; languor and lassitude on making exertion; tottering gait with inclination to stagger—requires extra effort to walk straight; incapability of standing long at a time.

b. Head.—Vertigo, especially when stooping; headache; *darting pain in back of head*; beating in occipital arteries; feeling as if electrical currents were passing through l. side of head; catarrhal obstruction as from cold in head; *thick, heavy feeling, as in base and r. side of the head;* tender bruised feeling over parieto-frontal sutures; dizziness and confusion of head; inability to guide feet; staggering dizziness when rising or moving.

c. Emotive Sphere.—Low-spirited; continued sighing; restlessness; confusion of ideas; inability to concentrate mental effort; compelled to read a subject several times, to get a misty understanding of it; fickleness in regard to present or future events; stoical indifference to what happens.

d. Sentient Sphere.—Loss of memory; mental alienation;*

* This must have been something quite temporary and superficial.—Eds.

*apoplectic fulness of head, rather serous than sanguineous ;** electrical thrill, starting from brain and extending to extremities ; tingling in fingers.

e. Eyes.—Feel *rough* and *irritated as from wind and dust ; smarting* and *aching* of the eyes as from application of powerful astringents ; burning in the eyes ; lachrymation in open air or by brilliant light ; falling out of eyebrows.

f. Nose.—Dryness and suppressed secretion ; loss of smell ; difficult breathing through nose ; itching and uneasy feeling around nose.

g. Face.—Complexion sallow, blue, and inactive ; irregular spots of capillary congestion, as in face of drunkard after a debauch ; dusky bilious complexion, dark blue circle around eyes.

h. Throat.—Throat *tender* and *sore* on swallowing, or on admission of *air ; hawking* of *mucus* from throat ; thick, œdematous, and dry choky feeling of throat, continuing in an acute form only a short time, and then becoming chronic ; great accumulation of matter, part of which is easily expectorated, while a portion of it is detached, with much exertion, in small flakes ; *spreading ulcers*, feeling as after application of nitrate of silver, constant hawking and efforts to raise hardened lumps of whitish matter ; *thickened swelled* feeling of muscles of neck ; *tenderness* and *enlargement* of parotid and thyroid glands ; sensation as after an astringent to pharynx ; *croupy choking ;* raising of mucus and yellow matter from the throat.

i. Chest.—*Pain* and *contracted* feeling, especially through the centre of the left lung ; *equable oppression* as though chest was strapped ; *asthmatic oppression* in larger bronchi ; *aching, pressed* feeling of dorsal vertebræ ; *heated, burning* feeling as from breathing hot steam or air ; *excessive soreness* and *tenderness* of the lungs, compelling suspension of drug. On 2nd d. after suspension, wheezing asthmatic respiration ; cough, somewhat oppressed ; expectoration muco-purulent, free in m., sticky and scanty during d. ; deep, exhausting cough with asthmatic expansion of the lungs ; convulsive cough ; cough deep, and painful ; excessive *tenderness* all over the lungs ; feeling as though air-cells were stuck together ; inability to completely expand the lungs ; can hear the cells open as the lungs expand. *Crepitant rhonchus ; tired feeling* in lungs rendering it almost an exertion to breathe ; *stitching* and *aching* in the chest ; *aching* pain directly under clavicle, sometimes extending to sternum ; *burning* pain under l. shoulder ; *constant aching* between shoulders ; burning in r. lung ; aching in front of l. lung, extending to back ; aching close on either side of the dorsal vertebræ ; pain, as though from a small blade, 2 inches l. of lower portion of sternum ; *shooting, aching* pain in the shoulders and hips.†

j. Stomach.—No particular desire for food, but eats his usual quantity. Inactive condition of stomach as though its contractive power was impaired ; appetite capricious ; tongue thickly covered with whitish coat, brown in the centre ; water tastes brackish and flat ; no desire for drink except when eating.

k. Abdomen.—Weak, burning, uneasy feeling in the bowels, as of

* This must describe what the provers' sensations suggested.—Eds.

† Dr. Alley's pulmonary symptoms might have been set down to an intercurrent chill, but that they are confirmed by Dr. Minton's experiments.—Eds.

approaching diarrhœa; bowels moved easier than natural 2 or 3 times a day. Tympanites; slight rumbling in the bowels; looseness of bowels, seeming most in the large intestines.

l. Fever.—Dry, hot skin, especially in m., lasting until middle of d. (ALLEY, *N. Am. Journ. of Hom.*, vii, 385.)

6. *a.* Dr. MINTON made tincture of flowers, leaves, and bark, and took drop doses every h. for 12 h., when confusion and pain in head were so severe that he was forced to discontinue proving.

b. A week later he took 2 drops every 2 h., on 1st d. from 8¼ a.m. to 10¼ p.m., on 2nd d. from 8 a.m. to 6 p.m. In 20 m. after 1st dose slight headache with nausea and giddiness; in 30 m., severe darting pain through temples and occiput, with confusion of ideas. After 2nd dose, thick, heavy feeling also in head; figures and letters look blurred; in making up some accounts found it almost impossible to add up a column correctly. No appetite for dinner, everything tasting flat and insipid. In 20 m. after 3rd dose pain and tightness of chest; in 2 h. irritability of throat with hawking of mucus. In 36 m. after 4th dose numbness of l. arm and sensation as if fingers were asleep. In ½ h. after 5th dose oppression of breathing. In ½ h. after 6th dose soreness in internal chest with pain and aching in lungs, which increased later, and were accompanied by severe pains in head with chills, followed by flushes of heat. Sleep disturbed and unrefreshing; on waking, tingling sensation of l. arm and hand, dull headache, no appetite for breakfast, tongue coated, pasty taste in mouth. After 1st dose this d. headache set in immediately with some confusion of intellect. In ½ h. after 2nd dose nausea and sickness at stomach, with sour eructations. Loathing of food at mid-day; and soreness of glands of neck, with pains under l. scapula. After 4th dose constant sharp pain through small of back and hips. After 5th pain in back, head, and neck, with numbness of arm, still continue. After 6th numbness of l. leg also, with tingling, pricking pain in feet and toes.

After discontinuing drug, head, throat, and chest symptoms lasted for about 24 h., when they gradually died away. The numbness of arm and leg, with pain in shoulders, back, and hips, lasted 4 or 5 d. (*North Amer. Journ. of Hom.*, x, 358.)

7. *a.* A young man (æt. 28), of sanguine temperament, on June 6th, at 5 p.m., took 5 drops of the above tincture. In ½ h. fulness and somewhat of intoxicated feeling in brain; also fulness in throat, with desire to hawk up something. At 8¼ p.m. took 5 drops and in 15 m. felt above head symptoms return.

b. June 12th.—At 8½ a.m. took 3 drops. In ½ h. fulness and burning in brain; sensation of cold about eyes; and a gnawing in chest. At 9¼ took 3 more drops. In 2 h. dull heavy headache, with heavy feeling in sternal region. Between 1 and 2 a heavy frontal headache came on again, with drowsiness; went to sleep and slept two h. Severe pain through temples on waking. General feeling of fulness in system, much soreness, irritability, and prickling or tingling sensation in skin. Heavy sleep during n. (*Ibid.*)

8. Another young man, æt. 21, began by taking 1 drop every h. for 8 doses, without effect save a slight headache. He then took a tea-

spoonful at once. In about ½ h. began to feel queer and somewhat frightened; sensation of giddiness, with nausea and sickness at stomach, came over him; cold perspiration stood out on skin; fingers, and indeed whole body, began to tingle and prick; limbs felt as if asleep; figures at which he was working danced up and down; he staggered back, and fell into his chair, almost unconscious. Bourbon whisky was administered, and he soon began to vomit and purge, which continued for 2 h. Even 2 d. after experiment he had some headache and numbness of l. arm. (*Ibid.*)

9. *a*. Dr TRUE tasted of some freshly-dug ailanthus root, and had repeated vomiting, unaccompanied by straining and retching, but with death-like sickness.

b. Same made infusion of ℥iv of bark to Oj of water, and took two tablespoonfuls at 1.40, 2.15, and 3.40, and three at 4.40 p.m. At 5.20 noticed heavy ache through head just behind ears; feeling about articulations of jaws like mumps; and slight nausea. At 6.50 took six tablespoonfuls, throwing up dose as soon as swallowed; at 7.15 nausea, general relaxation, indisposition to exercise, difficulty of keeping attention fixed. At 8.35 symptoms were abating, and at 9 they had gone.

c. Next d. made infusion of ℥ij of bark to Oj of hot water, evaporated to ʒviij, and took whole at once. Only effect was slight nausea, and feeling of tension through head just behind ears, as after large dose of quinine. At other times took ℥ij of saturated tincture, and ate bark and roots, with but little effect. (HEMPEL, *Mat. Med.*, 3rd ed., sub voce).

II. *Poisonings*.—1. Two young girls amused themselves one evening by stripping the outside bark from the young and tender shoots of the ailanthus, and then, after writing letters on the stalks with the point of a pin, these were moistened with saliva by means of the end of the finger. This was many times repeated, so that some quantity of the juice of the stalks must have been conveyed to the mouth. Both were made ill, with similar symptoms, but one the much more severely. On rising she felt slightly ill; and on coming to breakfast the sight of food made her feel so much worse that she left the table and went to her room. She was seized suddenly with violent vomiting; severe headache; intolerance of light; dizziness; hot, red face; inability to sit up; rapid small pulse; drowsiness, with at same time restlessness; and great anxiety. Two h. after first attack drowsiness had become insensibility, with constant muttering delirium; she did not recognise members of family; and was covered, in patches, with a miliary rash, of dark, almost livid, colour, on a dull, dingy, opaque ground, more profuse on forehead and face than elsewhere. Pulse was now small, and so rapid as hardly to be counted; surface had become cold and dry; livid colour of skin, when pressed out by finger, returned very slowly. In about 3 h. from first appearance of eruption livid colour began to lose something of its dark hue; restlessness and anxiety diminished; pulse became more distinct and less frequent; consciousness partially returned; eruption became a brighter red. A series of rigors, followed by burning fever, now set in, and continued at intervals

for a fortnight. Chill was always preceded by a miliary eruption, most copiously developed in forehead and face. During chill there was great hunger with distressing sense of general emptiness; any food taken was speedily vomited; intolerable pain was felt in nucha, upper back, and r. hip-joint. During hot stage there was urgent thirst with delirium, and strong desire for brandy. Each year since this poisoning patient has been attacked by a similar miliary rash at season of blossoming of ailanthus, and is more or less ill with it. (P. P. WELLS, *Amer. Hom. Review*, iv, 385, and *Monthly Hom. Review.*, xi, 289.)

2. Dr. WELLS himself experiences annually, on the blossoming of the tree, a peculiar dull, heavy, pressing pain in forehead, of no great severity, but indisposing to or even incapacitating for all exertion, especially mental. He describes also, as common to many others with himself, a feeling at this time of "uncertainty" in the bowels, as if they might be attacked with looseness any minute. (*Amer. Hom. Rev.*, vi, 268.)

3. Dr. DE WOLF noticed, for many years, effects of aroma of blossoms on self and others, and enumerates them as—nausea, vomiting, diarrhœa, and spasmodic abdominal pains. (*Philad. Journ. of Hom.*, ii, 576.)

4. M. DECAISNE reports that the gardeners employed in trimming ailanthus trees suffer from nausea, and sometimes from vomiting, with prostration. (GIRAUD, *op. cit.*)

5. Dr. ALLEY noticed effects of aroma in two persons.

a. In a woman, throat was dry, rough, and scrapy, more so in m.; there was hawking up of greenish, puruloid matter; fauces and tonsils were inflamed, with spots of incipient ulceration; thirst for cold drinks, heavy dull headache, with great oppression of bronchiæ; violent fits of coughing before retiring and on rising, lasting till expectoration becomes free (comfortable during d.).

b. A man always experienced occipital headache, vertigo, squeezing pain in forehead, and swelling of l. cheek; soreness and pain on l. side of nose, puffed erysipelatous face; nausea at intervals, sleepiness and heaviness. (*U.S. Journ. of Hom.*, i, 285.)

6. Mrs. K—, then in her climaxis, and for many years a sufferer from gastric derangement, called Dr. MESCHTER, complaining of symptoms which she referred to her dyspepsia. She had pale colour of face, dry skin, coated tongue, pains in hypogastrium and hips, jaundice and tenderness over hepatic region, constipation, difficult micturition, and an accelerated pulse. Next d. patient was no better, and the doctor found her youngest daughter sick in bed with same symptoms. Both got worse from d. to d., vomited repeatedly, and complained of constant violent increasing pain in stomach. The second daughter then became ill, and presented identical symptoms. The father, who was away at work all d., was at last affected precisely like the others. The doctor suspected poison, and at length learned that the brook water used by the family tasted badly. On examination, the roots of an ailanthus were found extending into it; and the flavour was such as impregnation with its bark would produce. On discontinuing use of water family became and remained well. (*Philad. Med. and Surg. Rep.*, Feb., 1872.)

7. Three little boys smoked stems of ailanthus like cigars. They had giddiness, nausea, with retching and some vomiting; frequent watery dejections, expelled with great force; burning in stomach and bowels, colicky pains in bowels. The giddiness and nausea lasted off and on for 2 or 3 d. (WILLIAMSON, *N. Am. Journ. of Hom.*, x, 360.)

8. Dr. TRUE published an article in the *Ecl. Med. Journ.*, Sept., 1875, relating alleged poisoning with bark in two children, æt. 4 and 6, with following symptoms:—Drowsiness and sleepiness; pulse slow and full, but regular; breathing natural; they would vomit during sleep, but without waking; could be roused by shaking, but then seemed sleepy only, soon going off again. (HEMPEL, *op. cit.*)

9. *Local effects.*—Reveil states that gardeners are obliged to protect their face and hands when trimming the trees, else they suffer from vesicular and even pustular eruptions. He also affirms that the resinous substance extracted from the bark by ether produces vesication when applied to the skin. Giraud applied to skin compresses saturated with infusion of bark, and found them produce a large number of small elevations, circumscribed, surrounded by a very small inflamed areola, and filled with a turbid liquid looking like pus. Dr. Lindsley observed a case in which a young lady, sleeping on a lounge by an open window in front of which was an ailanthus in full bloom, had upon her skin, wherever uncovered, a vesicular inflammation resembling the eruption caused by *Rhus*. He applied the juice of a freshly-broken twig of the tree to her arm, and it produced a copious eruption upon a surface much larger than the part touched. (*N. Amer. Journ. of Hom.*, xxx, 85, and Hempel, *op. cit.*)

ALETRIS.

Áletris farinòsa, L. Star-grass. Nat. Ord., *Hamadoraceæ*.

I. *Provings.*—1. MAN. Took, Nov. 3rd, 10 drops of 1_x at 2.30 p.m., and 25 drops at 4. At 4.30 slight nausea with pressure in forehead; nausea increased till 6, when a meal relieved it for 1 h., it then returned and lasted all e., sight or thought of grease causing him to gag. At 7.30 took 40 drops, and at 8 next m. 50 drops. Five m. after latter felt weight at occiput, as if it would draw head backwards, neck not having strength to prevent it; at same time feeling as if scalp there were contracting from side to side. All passed off while breakfasting 30 m. later. At 11.30 took 65 drops, 75 at 3, and 85 at 4. Stool was harder and more difficult than usual; and soon after last dose there was slight pain in occiput and nucha for 20 m. Nov. 5.—At 9 a.m. took 40 drops of tinct. Stool as yesterday. At 10, dull, heavy headache in different regions, continuing all d., and increasing after every dose. At 2 and 3.30 took 75 drops. No new symptoms, but headache much worse. (Dr. J. W. KING, *Amer. Homœopathist*, March, 1885.)

2. WOMAN. Nov. 3rd, at 2.30 p.m., took 11 drops of 1_x. At 3.20 sensation as if back would break just above waist. At 4 took 20 drops. At 5.10 same pain, a little higher up; at 7 a sharp pain ran from angle of l. scapula through to l. breast. At 7.30 took 50 drops. At 8.10 feeling as if eyelids were being pressed downwards, she could hardly raise them. Nov. 4.—At 8.30 a.m. took 50 drops. Just before dose, slight pain in occiput; and immediately afterwards great weight there. At 11.30 took 65 drops, with same result. At 3 took 75 drops, and felt pressure in forehead over eyes and queer sensation behind ears. At 4 took 85 drops. At 4.20 heaviness in occiput, forehead feels as in a vice, with dull pain running from r. temple over eye into eyeball. Soon after dinner, dull aching in hypogastrium and

across back of hips. No stool since taking drug till 8 this e., then hard, scanty and difficult, followed by urinary tenesmus for ½ h. (usually has two or three stools daily). Nov. 5.—At 9 a.m., 30 drops of tinct. In 30 m. occipital heaviness, feeling as if temples were pressed together, with occasional twinge of pain in r. temple. Took 45 drops at 12.30, and 75 at 2 and 3.30. Soon after last ache in back of head and pressure over eyes, with sense of uneasiness for a few m. only. Urination rare while taking drug. (*Ibid.*)

3. MAN. Dec. 29.—At 8 a.m. took 35 drops of tinct., and at noon 40 drops. 30th.—48 oz. of urine passed during last 24 h., sp. gr. 1025. Took 40 drops in m., 30 at noon. 31st.—Took 30 drops at m. and noon. At 6 p.m. bowels moved for first time since taking drug, stool hard, scanty, and difficult. All afternoon felt pain in r. side of throat, and at 5 in l. side close up under jaw, with thirst. Dr. King examined with laryngoscope and found hyperæmia of mucous membrane of both pharynx and larynx. Appetite entirely gone, has to force himself to eat. All afternoon tired and relaxed, with dull, heavy, confused feeling in head; cannot concentrate mind for study. Jan. 1.—Urine of last 24 h. amounts to 22 oz., sp. gr. 1022. At 8.30 a.m. took 30 drops. At 9.30 stool as before. 2nd.—Very restless during past n.; urine of 24 h. 48 oz., sp. gr. 1020. At 2.30 p.m., 30 drops. Soon after pain in l. occiput just behind ear, for about 2 h.; some short lasting pain also in throat. Frequent attempts at stool, but abortive until 10.30 p.m. 3rd.—Urine 40 oz., sp. gr. 1030. At 9 a.m., 60 drops. Almost immediately strange feeling all through head, gradually settling down to dull pain in occiput, which passed off in 10 m. 4th.—Urine 48 oz., sp. gr. 1022. Took 50 drops at 8.30 a.m. At 10, stool as before. 5th.—Urine 40 oz., sp. gr. 1022. At 9.45 a.m., 65 drops. Stool rather easier. Took 60 drops at 2.30 and 4.30, and 65 at 6 p.m. Soon after last dose pain in centre of nucha, running off into l. shoulder, continuing there 30 m. Pain in neck then moved up into occiput, where it continued all e., till he fell asleep. At 7.30 intermittent pain in r. ant. pillar of fauces, like electric shocks, slow but strong, aggravated by any movement of head putting muscles on stretch. Inspection showed hyperæmia as before. For last 3 d. has had soreness inside tip of nose. 6th.—Urine 42 oz., sp. gr. 1030. At 9 a.m., 65 drops. Stool thin and diarrhœic, with hard lumps in it. After three doses of 60 drops each griping in abdomen for 1 h. Took 60 drops more in e. All d. headache on vertex, much aggravated by bending forwards. Nose less sore. 7th.—Urine 40 oz., sp. gr. 1024. Two doses of 60 drops to-day. Headache continued, aggravated by difficult stool. Nose nearly well. 8th.—Urine 44 oz., sp. gr. 1022. Stool hard, but expulsion easy. Vertex headache as before. 9th.—Stool to-day natural for first time since taking drug. Throughout proving, and up to 15th, lay awake till 12 or 1, sleep then restless till late in m., when it became calm.* (*Ibid.*)

4. WOMAN. Jan. 1st.—80 drops of tinct. 2nd.—Urine 54 oz., sp. gr. 1022. Took 80 drops. 3rd.—Urine 50 oz., sp. gr. 1022. At 9.30 a.m., 60 drops. At 4.25 p.m., pain commenced at pubes, ran down l. labium and then shot upwards, diverging to l., coming out near umbilicus. Pain was as of a knife-thrust; lasted 1 m. only. (When commencing to prove drug, a profuse yellow and mal-odorous leucorrhœa was present, having existed for years, and increased during last two months; on 2nd d. discharge was much less, and on 3rd almost imperceptible.) 4th.—Urine 64 oz., sp. gr. 1020; phosphates slightly increased. Took 60 drops. 5th.—Took 65, 60, and 60 drops between 9 and 4. At 4.30 heaviness on vertex and in forehead over eyes. Much flatulence after food (quite unusual) to-day and yesterday. In e. 65 and 60 drops between 6 and 8. Between 8.30 and 9.30 several paroxysms of pain, tearing or cutting, in hypogastrium and r. thigh, lasting 2—5 m., once so sudden and severe as to make her cry out. 6th.—On rising deathly "gone" feeling in stomach. Urine 64 oz., sp. gr. 1020. Took five doses of 65 or 60 drops each during d. Ever since taking drug has had profuse watery discharge from nose, without other indications of coryza. At 2.30 compressive pain in temples; at 4 sharp pain in r. shoulder, running down arm and chest to above nipple, lasting 10 m.; at 4.15 dull pain in vertex and great weight in occiput; at 4.30 pain behind r. ear

* This prover had suffered for years from pain after stool, beginning in 1—2 h., and lasting 3—4 h. After beginning to take drug he had no pain, nor had any ecurred when he reported on Jan. 21st.

running down sterno-mastoid. At 5.40 severe cramp-like pain in each groin, lasting 5 m., accompanied with feeling that she must hurry to closet, but stool was perfectly natural; for 40 m. dull aching in groins occasionally running down thighs, and most intense in knee-joints. In 10 m. after last dose (7 p.m.) sharp pain in groins, continuing all e. All afternoon and e. abdomen as if filled with wind, moving from place to place, and causing pain, which is relieved by passing it. Soreness felt inside nose for 2 d., r. side worst. On inspection a small crack was found inside r. nostril. 7th.—Sleep greatly disturbed by troubled dreams. "Gone" feeling again on rising, relieved by food. Urine 64 oz., sp. gr. 1020. Took 60 drops at 10.30 a.m. At 11 dull pain over r. eye, running into ball, relieved by closing eye, at same time nausea and dull pain in lower abdomen; at 11.30 pain as of a knife-stab in l. breast for 2 m. Since 2nd d. of proving there has been an eruption across chest and upper back, itching intolerably; relief from rubbing, but aggravation from scratching with nails. It appeared a simple papillary rash with much hyperæmia (and hyperæsthesia) of surrounding integument. 11th.—Every m. since discontinuing drug has had headache, with "gone" feeling at stomach relieved by food. Until 12th (since 7th) unable to sleep till late, then terrible dreams on falling asleep, wakening her, until late in m. On 25th catamenia, scanty, but more painless than for years past.* (*Ibid.*)

5. MAN proved fluid extract. On Jan. 13th took 60 drops; on 14th, 60 drops at 8.30 a.m., and 65 drops at 11.30. At 11.45 sharp lancinating pain in r. eyeball, lasting about 10 m. At 12.30 took ʒj: about 5 m. later cramps all through abdomen, continuing some 30 m. At 4 took ʒj: soon after pain all through abdomen, settling down into hypogastrium, relieved temporarily by passing flatus, permanently by scanty loose stool at 6.30. At 7.30 again ʒj; and in 10 m. same pains, aggravated by bending forwards, relieved by bending backwards; in 10 m. more whole intestines seemed sunk down into hypogastrium and being cut by knives. After 20 m. scanty loose stool relieved pain. 15th.—26 oz. of urine passed during last 24 h., sp. gr. 1026. At 9 a.m. took ʒj. In forenoon mind confused and wandering, much effort required to concentrate thoughts. Pain since rising till 3.30 p.m. in abdomen, chiefly hypogastrium, by spells, at last relieved by very scanty loose stool, with and after which was much tenesmus and feeling as if anus was closed. 16th.—Yesterday and to-day nose sore just inside tip to l. Since taking drug fæces and flatus highly offensive. For last three nights could not sleep till very late, and then sleep was restless till late in m. This continued, with desultoriness of thoughts, till 22nd. (*Ibid.*)

6. WOMAN proved same. On Jan. 13th, 2 p.m., took 60 drops. At 2.35 heavy weight in occiput, with dull pain over eyes and through temples. At 9.30 felt as if about to faint, with nausea. 14th, 9 a.m., 60 drops. At noon fore part of head felt as if in vice. At 12.30 took 60 drops, with same result. At 2 took ʒj. At 2.45, pain running in 1 m. from back of ear down sterno-mastoid, leaving it sore to touch. At 4 took ʒj. At 7 sharp pain for 1 m. in l. breast, then through into back near angle of r. scapula. At 7.30 again ʒj. At 8.5 returning of food eaten at 5.50, with burning in throat. At 9.30 pain from ant. sup. spinous process of ilium to pubes, with feeling as if diarrhœa would come on, which did not occur. 15th.—At 4 a.m. same pain for 5 m., then aching down legs to feet, and up back, finally settling across back of hips; felt there on rising at 7.45, when she felt very tired, and had also pain and heaviness in occiput, with sharp pain down r. trapezius, aggravated by bending forward, and *vice versâ*. All passed off, save headache, at 8. Passed 43 oz. of urine in 24 h., sp. gr. 1020. At 9 took ʒj. All that n. pain running down thighs, worse in knees, causing her to toss about in bed and preventing sleep. On rising pain ran as before from ilium to pubes (she has this at periods). In afternoon, when sitting, annoying pain in knees. Since taking drug nights, especially fore part, have been very restless. A dull, heavy bearing down in hypogastrium all this d. On 17th courses came, painlessly for first time in life; they were true to time, but scarcely half their usual quantity. (*Ibid.*)

---

* The hypogastric symptoms of this prover were familiar to her during her catamenia.

ALLIUM CEPA.

Allium Cepa, Willd. Common onion. Nat. Ord., *Liliaceæ*.

I. *Provings.*—1. *a.* Dr. HERING took on Nov. 13th 5 drops of tinct. twice at midday. Very soon, nausea; a little later, pain in r. 4th and 5th fingers, and small appearance of letters on becoming sleepy while reading. In 5 m. painful sensation from throat to ears; 10 m., pain from both sides of head downwards and increased towards middle; 15 m., ears, throat, and region of root of tongue were yet more decidedly affected; 20 m., pressive pain over r. eye; 30 m., in 1st upper r. molars sensitive drawing from root to crown, afterwards in corresponding l. teeth; 50 m., spots hotter than usual on r. cheek, and pains moving from deep in head to ears, as it were thick threads about a finger long, remaining in particular spots of size of nuts. During 1st h., bruised pain in outer l. thigh near knee: after it, pains deep in head over l. brow, and from deep in occiput to behind ears, with oppression there; supra-orbital itching, mostly l.; twitching and gnawing, described as "chilling or burning," in r. throat, near Eustachian orifice, neither painful; abdomen distended (before dinner) so that clothes feel too tight; on walking, a sudden burning or chilling thread-like cutting in abdomen from both sides to middle and upwards; in anus and some protruding piles a cold, worm-like creeping. In 70 m., pressive pain, almost burning, in upper and outer l. thigh; 75 m., burning pains around l. outer ankle, and a burning pressure, first without, then also within; 90 m., burning glow or chilling sensation, with oppression, in r. abdomen, followed by emission of flatus; pains in r. and l. thigh. All symptoms disappeared after dinner (90 m.).

b. Sept. 15th and "following days," took tincture (doses not specified). On 1st d., in e., pressive occipital headache, later merging into sense of part being asleep; persistent benumbed feeling in back of throat; burning aching in eyebrows, supra-orbital region and upper lids; sensation as of smoke under upper lids; while walking in street unwonted nasal defluxion, without feeling of coryza; thread-like pain deep in r. upper jawbone, as in a nerve, from above downwards and from middle to side; much soft bland mucus in throat, compelling swallowing or hawking; pressure deep in epigastrium, often recurring, as if in cardiac orifice and posterior wall of stomach; within pelvis, at upper and inner region of groin, severe pressure on a small spot, afterwards becoming violent pain; burning pressure in region of bladder and soon afterwards in sacrum (10 p.m.); warm or chilling sensation, as if a glow within beat on r. abdomen, and in both iliac regions,—surface feeling warm only; painful embarrassed feeling in l. forearm, especially in radius, while resting one arm in writing; pains in r. wrist, on dorsal and extensor side; all e. voluptuous, corrosive itching on l. thumb; excessive tired feeling in both hips, on rising from sitting, and on walking, especially on going upstairs; burning pressure on small spot at middle of both legs; pains in r. foot, and especially in l. great toe; slight corrosive itching here and there, at seats of which small points appear, with desire to rub or wash them. At n., on account of weakness in hips could not complete coition, though he attempted it more than once. On 2nd d. the pain in r. upper jaw extended to nose; the pain in middle of l. radius disappears on grasping and rubbing it, but returns. On both d., in afternoon, after wine and coffee, much business utterly confused and distracted him, he forgot and confounded one thing with another to the utmost degree. On 4th and 5th d., violent cutting pains as from small knives in twisting motion, deep in above l. groin in middle of Poupart's ligament; this pain, quite new to him, moves to and fro in a small space. On 4th, 5th, and 6th d., after coitus at n., pressive pains deep in pelvis, as in bladder and prostate, during m. and forenoon. From 4th to 7th d., ringing in ears now and then, as from distant sounds, mostly in best ear. From 10th to 12th d. blood with stool. (*Amerik. Arzneiprüfungen.*)

2. Dr. JEANES "proved drug on himself," in what manner is not stated.* He had unusual sweating while preparing tincture, pungent smell, biting and weeping in eyes, and sneezing, after taking it: also (immediately) shooting and pressive pain in

* Probably in 4th dil. See *Guiding Symptoms*, sub voce CEPA.—EDS.

internal inguinal ring and spermatic cord; later, on 1st d., pain in region of r. kidney, shifting on 2nd to l., with irritability of bladder. On 2nd d., m., raw feeling in throat, with tickling in region of epiglottis, first r. and then l.; therewith sense of weakness in stomach, very annoying hiccough and bringing-up of frothy, saliva-like, mucous fluid, with flatulent eructation and expulsion; there was constant inclination to hacking, to remove tickling in larynx; after breakfast, violent pain in r. ankle and rumbling in epigastrium. On both days, hoarseness. On 3rd d. and later some purging. To this prover are also referred, without note of time, the symptoms—weight and pain in head (latter in "region of organ of concentration"); cloudy sight in e. by candlelight; pain in region of pylorus; pressure on bladder; very red urine, with reddish-yellow sandy sediment; shooting pain in various parts of chest; rheumatic pains in joints; pain in r. great toe and l. middle finger; shooting pain in l. leg and r. foot; dreams of dangerous positions and efforts to escape from them.* (*Ibid.*)

3. Dr. ALLEBORN proved tinct. on four men, who took from 1 to 50 drops several days in succession.

a. "G." Dull pressive pain in head; a bright dazzling in distance with dim vision near by; continual eructations, nausea, and pressure in stomach, with rumbling and gurgling in hypogastrium, especially on l. side, where there is sticking and croaking, with ineffectual urging to stool; pressive pain in hepatic region, extending through whole abdomen; biting in anus; burning pain in forepart of glans penis; stitches in l. chest and r. arm with burning pain; lameness in joints of l. hand; paralytic pains in knee-joints; stitches as with needles in skin, especially on head, forehead, brows, throat, loins, and r. arm. It attacks at once whole body and causes a shuddering throughout, with eructations of gas.

b. "L." Burning in lids; colic in umbilical region; pain on l. side of abdomen as from a bruise; desire for food, changing to disgust on beginning to eat; the whole body is put into a revolution which the prover is not in a condition to describe.

c. "P." Feeling of emptiness in stomach, and drawing to and fro therein, with some pain on l. side; pressure in stomach and fulness in head, with much yawning; weak feeling, especially in arms.

d. "W." Eructations of wind immediately, then oppression of head, especially in forehead, and distension of abdomen; thereupon urgency to stool, but only passage of wind; therewith weak feeling in limbs, and in e. free expectoration of mucus. The distension of abdomen continued until next day, and ended with a diarrhœa, on which all other symptoms also vanished (from 50 drops several times repeated). (*Ibid.*)

4. Dr. ECKEL took, on 1st d., before breakfast, 2 drops, on 3rd, 4 drops. Very soon, rumbling in abdomen with passage of much wind, preceded by heat and frequent eructations. After breakfast, for 2½ h. great dryness of soft palate, pressive headache over eyes, with at times electric-like shocks through head; therewith sensation as if whole head was bathed in warm water. Frequent eructations, stomach distended, and pains in abdomen, relieved by emission of flatulence: internal heat therewith. Periodic pain in pubic region, worse while sitting. Frequent cold shivers creep along back. In afternoon roaring in l. ear, as heretofore only after a severe cold. After coffee an irritation on l. upper lid, necessitating frequent rubbing; in e., lachrymation of eyes with coryza, l. eye red and sensitive to light; worse in warm room. Towards e. stitches in l. side, excessive thirst, heat, and severe coryza with much lachrymation, headache; discharge from nose was acrid and burning, so that upper lip became red and sensitive: therewith trembling of r. hand, so that he could hardly write. Next m. lid still irritable; coryza better, but became worse in warm room in e., relieved by open air; drawing pains in l. cheek, going into interior of l. eye, better in cold air; in afternoon pains in abdomen returned more severely, worst in l. inguinal region, more pressing than burning, but with heat in abdomen, frequent micturition, with burning in urethra, urine very red. On 3rd d., found teeth—normally white and sound—of a dirty-yellow (this continued till 5th d.). After 2nd dose, pains in abdomen recur with much rumbling and emission of flatulence; excessive lachrymation of l. eye and redness of ball after frequent sneezing; hawking up

* The other symptoms credited to this author were evidently observed in patients.—EDS.

of mucus of sweetish nauseous taste; no stool, and sacral pain, such as he ordinarily has if constipated for some d.; at 9 p.m. pain became seated in r. hypochondrium, with cold shuddering down back so that he could scarcely get warm; also internal coldness followed by heat and great thirst, which continued into n.; with the chill urine a deeper red. On 4th d., m., dryness and tickling in throat, with hacking; this d. and the following much irritation of r. nostril, soreness of nose, sneezing and lachrymation, with some headache; stool large and thick; in e., headache and coryza, eructations of gas, flashes of heat over whole body, and thirst. On 5th d., m., nauseous taste, eructations even worse, tongue slimy; cold creeping along back. Up to 8th d. some soreness of nose.

The abdominal pains were always aggravated after eating; the sticking pains in l. side by deep inspiration. Every d. he was sleepy and disinclined to work in m. after rising.

5. Dr. Geist took one drop of 3rd on e. of 16th and 2 more about 11 a.m. of 19th Dec. After 5 h., dull pain to r. of sternum on moving in bed. In m., pain below sternum on stooping; numb sensation in l. elbow-joint. This n. and next feeling as if back teeth were too large, with some pain; disappears on rising. On 3rd d. defæcation very difficult, though fæces were not hard. On 4th d., 1 h. after dose, crawling in r. nostril as before sneezing, must frequently blow thin mucus out of nose. On 5th and 6th d., while going against a north wind, pressive toothache in r. back teeth, upper and under, with inclination to bore tongue into them and suck (which relieves)—lasting 1 h.; also great urging and straining with soft stool at usual time. On 7th d. slight pressure in r. back teeth on entering warm room; it is increased by lukewarm cocoa, relieved by cold water. During stool feeling as of cracks inside anus; in r. elbow-joint pain as from a blow. On 8th d., at breakfast, back teeth pain on chewing, so that only soft food can be eaten, a pressive pain remains for some time after; towards noon it settles in root of l. eye-tooth, gum is inflamed; pain frequently ceases suddenly and commences in an instant in a r. molar; in eye-tooth it is pressive and grumbling; cold relieves. Sleep disturbed by it, great heat in cheeks: towards m. remission and sweat, cheeks feel swollen. On 9th d. hypogastrium heavy as if pressed upon. (*Ibid.*)

6. Dr. Lingen took unknown quantity and reports:—Stitches over whole l. side of forehead externally, drawing into ear, upper jaw, and teeth of same side (e., immediately after taking drug); with great dryness in both nostrils, there collects in fauces much thick, white, frothy, tasteless mucus, which is easily expectorated without cough. (*Ibid.*)

7. Dr. Neidhard experimented on three ladies with tincture.*

a. Took 20 drops at 10 a.m. Felt extraordinary desire to exercise mental faculties; no other symptoms save that for a few d. she looked paler and more haggard.

b. Took 10 drops. In 5 m. oppression in forehead and over eyes; dizziness on moving about, lasting 3 h.; pricking in soles, with numbness; pain in back.

c. Took 5 drops at 4 p.m. Dull aching pain over eyes and in centre of forehead, lasting with slight intermission until e.; frequent shooting pain through teeth on r. side; slight aching from back of head down nape. Next d., at 10.30 a.m., took 10 drops. In 15 m. heaviness over eyelids like a weight, followed by slight drowsiness (without pain); at 11 dull pain in forehead, less severe pain than on previous d., increased by reading or writing. (*Ibid.*)

8. Dr. Wesselhoeft took 2 drops of tinct. in water 4 or 5 d. in succession, and reports: Soon after taking dose moderate warmth in abdomen, squeamishness, and slight rising of nausea from stomach to throat; then slight confusion in head; micturition more difficult; urging to pass even small quantities of urine; this ceased after some days, but then returned and lasted a long time. (*Ibid.*)

9. Dr. Williamson took unknown quantity, and reports:—Pains in both temples, most severe in r., aggravated by winking,—later pain extends over forehead, worse on l. side; tingling pain behind l. mastoid process; heat in l. eyebrow; dryness at r. root of tongue; contractive pain in l. hypochondrium, with movement of wind; pain about navel 1 h. after dinner; rumbling in transverse colon and sudden urgings to stool; stools soft and painless; pain in cervical region; copious micturi-

* These details have been communicated by Dr. Neidhard himself.—Eds.

tion; throbbing in larynx and sensation as if it were contracted; pain in chest as though food remained lodged behind sternum. (*Ibid.*)

10. Dr. ZUMBROCK took 10 drops of tinct. several times. After such dose at noon, had for whole afternoon pain in throat below larynx, as after swallowing a large mouthful, or as if swollen; pains extend at times into r. ear; towards e. collection of mucus behind choanæ; same d. drawing in r. spermatic cord; a very painful and long drawn-out stitch in lower rectum; painful twitching on inner side of l. heel; severe pains like neuralgia from upper half of r. eye to root of nose. On 2nd d. dull pains in r. renal region, and very uncomfortable feeling of fulness in bladder with urging to urinate. (*Ibid.*)

11. Dr. DUBS, after eating onions, feels feverish as after taking cold, worse in e., with heat in face, tongue and mouth feeling burnt and dry, without thirst, drinking only in small quantities; therewith restlessness in all limbs, so that he cannot keep them still; next d. the tongue is coated. (*Ibid.*)

12. PROLLIUS ate a Brunswick onion, and experienced in 4 h. indescribable anxiety; walks about, and finally, full of apprehension, throws himself on bed, and soon gets up again; constant violent pains on l. side of abdomen, more in lower part, also in vesical region; frequent severe urgency to urinate and burning passage of urine drop by drop; violent thirst; expression of anxiety and doubt; skin hot, especially in painful and tender places; pulse somewhat accelerated, full, hardish. (*Caspar's Wochenschrift*, 1845, p. 835.)

ALLIUM SATIVUM.

Allium sativum, L. Garlic. Nat. Ord., *Liliaceæ*.

I. *Provings.*—1. Dr. —— prepared a tincture by cutting garlic into small pieces, adding spirit and shaking well every d. for 8 d. Of this he took m. and e., on June 27th, 10 drops on sugar, and subsequently as much as 20 drops. Result was meagre. Stool, usually occurring in m., appeared only after dinner, and accompanied by sudden urging; during evacuation heat in rectum; fæces at first normal, then somewhat watery and hot. During the d. scarcely half ordinary urine passed. About midnight frightful anxious dreams, with pressive headache on vertex. Did not urinate during n., contrary to habit; in m. scarcely one third of ordinary quantity passed.

After proving, much troubled by smarting and burning of eyes with lachrymation and agglutination of lids (which were opened with difficulty), which regularly occurred if he allowed himself to read in bed for an hour, as he was accustomed to do. Previously to the proving he must use spectacles to read the paper, now he can read without spectacles. (*Allg. hom. Zeit.*, lxxxiii, 184.)

ALOE.

Aloë Socotrina, Lam. Gum aloes. Nat. Ord., *Liliaceæ*.

I. *Provings.*—1. Every healthy person who takes a certain quantity of A. has some stools from it. He experiences otherwise no symptoms, unless it be sometimes a little heat and uneasiness in region of liver. The effect is rarely felt for the first 8 h., often not till after 12 h., and this whether the dose is great or small. The stool is often preceded by some pinchings, and at times accompanied with tenesmus. The excrements are mixed with bile; they are not watery, and have an odour quite *sui generis*. The effect of A. on the stools is the greater the more inclined one is to free biliary secretion. By the evacuations provoked by A. the system is not refreshed as it is by purgation induced

by other agents, especially by the neutral salts; it is rather a little heated, and that the more according as the evacuations are copious and frequent. If the dose is strong, the pulse is often quickened, dryness of mouth and thirst are induced, the urine is passed in smaller quantity, and is burning; there is felt in the hypogastrium a disagreeable warmth, sometimes even a throbbing, and in the r. hypochondrium pressure and tension are noticed. If the use of the A. is continued for many successive days, its effects increase, unless the dose is diminished; this applies also to the heating. If the subject is disposed to hæmorrhoids and to too copious menstruation, A. sometimes provokes hæmorrhoidal sufferings and augments the catamenial flow. Small doses, moreover, often cause erections, and increase the sexual appetite. (WEDEKIND, *Rust's Magaz.*, xxiv, 2, 304.)

2. A. hardly ever does more than produce one stool, which seems to be merely an evacuation of what may be supposed to have been present for the time in the great intestines. It is remarkable that it does this in a very small dose, and it is equally remarkable, that though the dose is increased to ten times the quantity the effect is much the same. I have found that hardly any dose under 20 grains will procure a liquid stool, and when it happens, it is always with pain and griping. . . . . As A. operates especially upon the intestinum rectum, there may be a foundation for the common opinion of its producing hæmorrhoidal affections; and from the large and frequent use of A., I have had instances of such effects. (CULLEN, *Treatise of the Materia Medica*, ii, 525.)

3. In the course of three years GIACOMINI took 120 grammes of A. 1 to 3 grains taken fasting caused, usually, a few eructations tasting of the drug, but always increased feeling of hunger, and after 8 to 10 h., often after previous pricking in the bowels, one or more light copious stools of soft yellowish-brown fæces, mostly accompanied by discharge of flatus, and having a strong and peculiar odour at times; the evacuation was repeated more scantily some h. afterwards. 8 to 10 grains appeared not to increase these effects, although the pulse (after 3 h.) was slowed. At 16 to 20 grains, evacuations only seldom occur which can be said to be effects of the remedy; in place of this the pulse is slowed 4 to 8 beats in a minute, and the urine is copious and turbid. Once after a scruple dose, the stool only occurred after 28 h., and there was nothing further to be observed than a certain anxietas. After 30 grains between m. and e. followed a n. of perfectly calm sleep, but next d. there were two tolerably fluid stools, copious urination, general depression, and very urgent inclination for food. In his numerous experiments instituted with small doses, he sometimes experienced biting pains in the intestines, which were (he says) the forerunners of the pending evacuation, and manifestly depended upon the descent of the separate intestinal humours. (*Trattato Filosofico Sperimentale*, 1833, iv, 336-8.)

4. A. B—, a young physician, proved A. in 1833.

a. Took one grain at 6 a.m., and shuddered 40 m. thereafter. In 4 h. feeling as if head were expanded from within; a single twitching drawing over l. eye and outwards through it; after a meal, coldness

(objective and subjective) of hands and feet, latter grew warm after walking, former less so, in e. both warm; late in getting to sleep. Urine transparent, dark, not increased. Awoke at 3 a.m., with hasty urgency to stool, dull gripings, movings about in abdomen, thin, pappy, copious evacuation, afterwards feeling as if more would come. Woke again at 7 completely active; had canine hunger in forenoon; at noon sore pain in r. vertex, touching hair hurts the spot—later; in e. same pain in other small places; in afternoon and e. pressive boring in l. temple, followed by stitching drawing in l. eye outwards coming from brow; bruised pain between and on scapulæ, as after long stooping. On 3rd d., awoke at 7 with feeling of hunger and urgency to micturition; during forenoon, copious emission of light-yellow urine, and two extra stools; at 11 a.m. driven to urinate quickly, he can scarcely hold it; feeling as if he had taken cold in bowels, after the m. stool; pressive or paralytic drawing in r. upper arm near the shoulder, at rest and in movement; drawing stitches, not deep, over r. temple; tensive numb sensation spreads from forehead over scalp, with feeling of increased warmth; in afternoon, more frequent, quicker urgency to micturate, with less quantity than in m.; in e. and next m. while lying in bed sprained feeling in several joints. During these d., face had pale, sickly colour. On 4th d., awoke at 3 with urging to urinate, and had a copious, thin, pappy stool without straining; felt also pressive pain in pharynx, feeling of rawness and swelling, especially on swallowing, with hawking of thick mucus (all going off on rising). Remained wide awake till 6, when he had movement in umbilical region, with urgency to stool and hunger; a second stool followed, with flatus and a sort of tenesmus; at 7 a third stool with straining; when he thought he had finished, still more came; at 11 a fourth stool; drawing in front of urethra when sitting; drawing tension on r. side of neck, as if in muscles, burning on stooping (same sensation 2nd and 3rd d.); pain in and about meatus auditorius almost like ear-ache; also when closing jaws sense of numbness behind ear, drawing down to lower jaw through a back tooth; dull drawing and shooting on r. forehead, confusing head, and compelling him to make the eyes small. On 5th d., in m., on rising, hawking of thick, tenacious, lumpy mucus, like jelly, easily detached; soon after breakfast hungry feeling in stomach, with collection of water in mouth; afternoon, some blood blown from nose. Throughout d. increased urgency to micturition, urine not more copious than usual. On 6th d., sleep having been bad, was excited mentally, yet dozy; and had violent urging to micturate.

The tenesmus was occasioned by an unpleasant sensation in anus, as if more fæces would follow, which must be held back on account of soreness; yet for some cause cannot draw anus together.

b. Took 4 grains, washed down with some water, in forenoon. Soon after, pulse became very slow (55), weak and suppressed, and there was coldness, especially through legs; ½ h. later, pulse still subnormal in force and frequency, but face was warm and flushed, and he felt lively and excited; in 1 h. warmth in stomach, with feeling of hunger, pulse 60, weak, sometimes intermitting a beat. During siesta, no sleepiness, feet and hands cold, only warming up gradually. Urine

passed in afternoon was, after standing, cloudy with whitish sediment (cloudiness finely granular); it was small in quantity, and of foul ammoniacal odour. Felt unusually vigorous at this time, but weary early in e.; had sensitive drawing pain in head, most externally; more pressure to urinate, but less passed; drawing pain in hands and feet. The n. was restless. On rising, hasty urging to stool, with continued rumbling in abdomen; spattering after stool; some rawness in fauces, chiefly in soft palate and uvula, with some hoarseness of voice, which disappears during breakfast, but returns (forenoon) on going into cold open air. Pulse after rising, 60, weak and suppressed; in afternoon over 60. A painful crack in under-lip, near r. angle of mouth. This d. and next dry lips, looking whitish if not frequently moistened; and now and then weakness of whole chest. At 2 a.m. on 3rd d., woke with urgency to urinate; same urgency on rising at 5, and again at 8 and 9.30, no increase of quantity. Every time he passes urine, he feels as if some thin fæces would escape with it. Pulse early was 70; at 3 p.m., 62. Long dozy mid-day sleep, cannot arouse himself; frequent yawning after it. In afternoon, excitement of mind and body; sensitive jerking drawing, as in flesh, from forearm to middle hand, 6 or 8 times in quick succession, while sitting still and writing; sudden attacks of coryza. In e. cold feet, hindering his going to sleep. On same d. are noted:—Labour soon becomes tedious to him; dryness of mouth; sickening odour from mouth, noticeable to himself, as if he had been long without food on a warm day; frequent desire for food, ate apples between meals; much flatulence; stool passed without his needing to make any exertion,—fell, as it were, out of rectum; highly coloured urine, of strong odour, remaining clear. In n., r. testicle felt cold to touch; no sound sleep; cold; woke at 3 a.m. from a mass of confused dreams. On then getting up, chill, lasting throughout d., in open air and in room; very sensitive during its continuance; in afternoon it is more severe, runs through skin of whole body, with some oppression in forehead; in e. feet only remain cold. Coryza also during whole d. After mid-day meal dozy half-sleep, eyes heavy. In e. severe stitches in middle of chest, about 6th rib, hindering deep inspiration. On this d. also, little disposition to mental exertion; feels discouraged as to success; no appetite for meat this d. or next; frequently a sensitive drawing in different parts of body, as if involving bones; sooner fatigued on movement; from this till 8th d., r. nostril scabby and sensitive within. Since rising, palate and fauces felt swollen, and increasingly during d., on empty swallowing and yawning. There was pain in arches of palate. On 5th and 6th d. these sensations continued; swallowing food did not hurt; on chewing, sides of soft palate pained as if sore, or as if burnt by hot food. At various times on these d., urgency to stool, which he could overcome; with stool always a feeling as if still more were at hand. No mid-day sleep on 5th d.; in e., pressure in r. eye-ball, severe but transitory; during d. at times, a flying pain in l. meatus auditorius externus, especially during mastication; early, while stretching, a shooting drawing in l. chest in region of 6th and 7th ribs, only superficial, but hindering respiration. From this to 8th d. weakness of chest on bodily exertion, and from 6th to

8th, lips as on 2nd and 3rd, underlip swollen, with a thick-skinned flat vesicle at inner margin of red, of size of flaxseed, yellowish; it makes lip thick. Throat as on 5th and 6th d. On 7th d., peculiar sensation on last phalanges, of l. hand particularly, as if hairs there raised themselves slowly; it seemed as if a hair lay on fingers. On 8th d., head was confused, oppressed, uncomfortable.

[Some of these symptoms continued a day or two longer, and fresh ones are noted as occurring up to the 25th d.; but their causation by the drug is too dubious to admit of their insertion. It may also be fairly questioned whether certain of the foregoing symptoms were not due to a catarrhal chill.—EDS.]. (*Amer. Arzneiprüfungen.*)

5. Dr. GOSEWISCH took 4th trit., and reports: Headache in m. following incomplete evacuation of bowels, lasting until a 2nd stool follows a few h. after; stool on following m. is golden-yellow; strong pulsation in anus, while sitting, after dinner. (*Ibid.*)

6. Dr. HELBIG took 5 grains one afternoon. Next m., on awaking, aching over a large space in middle abdomen; is compelled thereby to lie bent and to press upon the abdomen, which relieves. After rising, pain passed into mild cutting, and he had two normally coloured pappy evacuations. At same time, pain on inner margin of metatarsal bone of great toe, on walking and at rest; first, there is a pressure, then follows a slight drawing, as if the pressure extended itself. On 3rd d., on rising in m., severe aching in a small circle around navel, as if he had received blow from fist on abdomen. He plainly felt the pain, however, in the intestinal canal, and pressure on umbilical region increased it much; therewith yellow pappy diarrhœa and some nausea. The stool is accompanied by pricking in anus, as if it would tear (in front). Afterwards, a continued pain in anal passage, which obliged him frequently to draw it together, whereby it became tense and ached. In e. slight squeezing pain in r. ear. On 6th d. a jerking pain in region of l. lower ribs, internally, from above downwards, and from without inwards (on walking in m.). On 9th d., at n. in bed, pressive pain in r. forearm, beginning midway and ending in wrist, where it seemed as if it would force bones of joint asunder.

These are all the *dated* symptoms; but the following also are reported:—Pressive pain in l. temple especially, occurring now and then; pressive sensation on vertex; pressive aching at angle of r. occiput; aching, like a pressure, in occipital scalp; pustules in r. external angle of eye, surrounded by many red vessels; in e. h., remarkable coldness of nose to touch; thirst, especially for beer, which seems to alleviate pains in anus; bitter eructations for several days; hard pressive pains in region of r. lower ribs, alternating with just such pains in upper chest, as if below sternum,—former transitory but more frequent, latter more enduring but rarer; painfulness of whole abdomen, especially in sides and in front about navel, which parts cannot bear to be touched; on making a false step on pavement it hurts much in epigastrium; stool indeed daily, but difficult to pass, distending rectum first; he must go to stool soon after a meal; after loud rumblings and movements in abdomen, a thin evacuation, passing almost involuntarily, consisting in part of thin, yellow fæces, partly of bilious mucus

streaking these, thereafter crawling in anus, compelling rubbing; scraping feeling in throat, producing cough, dry at n., and more moist in m.; chest in front and sides up to axillæ painful to touch as if beaten, pain seeming to be between bones and flesh, excited also (in front) by deep breathing (with abdominal pain as above, muscles there painful on rising after lying), pectoral muscles painful on moving arms, and abdominal (at costal attachments) on pressing at stool, lasting 8 d.; pain in coccyx, as if he had fallen on it; aching in lower knuckles of first fingers of r. hand, e.; soles painful in walking on pavement, as if he had made a long journey—also at rest; in e., biting griping at navel, obliging him to rub it.

The following are observations by Dr. HELBIG:

a. E. S. took 2 grains, triturated with sugar of milk. Was morose and ill-humoured for several d.; on 4th d. had severe drawing sacral pains, spreading over whole pelvis, filling him with ill-humour; they increased in evenings, and lasted 8 d.

b. Took 2 grains at noon. Had immediately painful sensation in abdomen; towards following m., three yellowish diarrhœic stools, therewith dull pain across under ribs, with slight distension, some frontal headache, crawling in bowels, and chilliness, so that he felt very cold whenever he left stove; last stool accompanied by burning in rectum, hæmorrhoidal pains, and much flatus, and followed by constipation for 2 d.

c. Took an unknown quantity, and had bitter taste, with loss of appetite, and cutting in hypochondria.

d. Another reports downward and inward pressing pain towards nose in mid-forehead, and grasping beneath pit of stomach.

e. A girl, æt. 9, who licked a piece of A., had pressure in forehead immediately, and later displayed unusual cheerfulness.

f. A woman who rubbed tincture on abdomen had (besides some local irritation) aching in upper and middle parts, going downwards, with sense as of stone within, hurting her, and, when lying on one side, seeming to move to other. She sweated very much during n., and on next d., was taken with dry coryza and diarrhœa. (*Ibid.*)

7. Dr. HENCKE.—*a.* Took 10 drops of tincture (1 to 5). During first h. had frequent tenesmus, and in n. and following d. blunt stitching pain and grasping between shoulders, most towards r. On 2nd d., had in m. nauseating bitter taste in mouth; on rising, sacral pains, and during d. drawing about there, with sense of weight, especially in sitting; head confused, with dislike to any exertion; blunt stitches, now in l., now in r., hypochondrium; sense of fulness in abdomen; pressure and drawing in r. renal region; this d. and next, two pappy stools. On 3rd d., periodical movements and distension of abdomen, especially after eating; on this d. and next, sacral heaviness continues, involving rectum. On 5th and following d., hard evacuations.

Referred to this dose, but without note of time, are: Dull stitches through l. temple, into brain; dull drawing in l. side of occiput; after dinner acrid risings; after breakfast some pressure in epigastrium, relieved by eructations; grasping pain in splenic region; fine cuttings

in upper abdomen; periodical drawing in r. inguinal region; a transitory but recurring drawing in l. buttock. Cutting pains become worse after any sour food.

b. Took 30 drops in m. On 1st d., after 12 h., a thin pappy stool, and in 3 h. another; also anxious uneasiness, preventing mental labour; pressure about temples, with periodical heat of face and flickering before eyes; a twisting and griping pain in upper abdomen soon after dinner and supper; the dull sense of weight in sacrum, relieved by walking, recurs, and lasts 8 d.; on this and following d., periodical clutching in coccygeal region for several m. at a time; periodical blunt stitches in hepatic region, at times moving into chest, and obstructing respiration; and sensitive pressure in orbits. On 2nd d., in m., some drops of blood from nose; twisting and griping in upper abdomen and around umbilicus, compelling him to sit bent up, which relieves; therewith repeated urging to stool, but only flatus passes, very offensive, and producing burning in anus, with temporary relief to pains; heaviness in legs. On 3rd d., frequent tenesmus without stool. On all 3 d., burning in anus for some time after emission of hot flatus.

c. Took in m. 2 grains, rubbed up with 4 of sugar of milk. Outpressing pain in forehead towards temples began soon, and continued, worse on walking, but especially on stooping; in 1 h., after frequent urging, scanty, dry stool, with sense as if more would come; in 3 h., an internal sense of congestion under short ribs; in afternoon, a slight cutting in abdomen, which increases on movement, or when body is drawn up, relieved by sitting bent; in e., emission of very offensive flatus, which gives ease; at n., awakes with blunt stitches in splenic, going to sacral, region. On this d. also, feeling in nose as if blood would come; grasping in both hypochondria; a few blunt stitches in hepatic region; gripings occasionally in umbilical region, sending a shudder through whole body; pappy stool at unwonted time (10 h. after). On 2nd d., peevish and morose; head confused; dim sight while writing; after evacuation, cutting at navel; stool twice, which is quite unusual with him, more pappy; rush of blood to chest, provoking, several times, dry cough; dyspnœa, with periodical pressure and grasping in chest, especially in r. half; on this and following d., drawing about and twisting in bowels. On 3rd d., pressive pain in forehead, involving orbits. From 3rd to 5th d., very stiff in sacrum after sitting, rising up was difficult; then feeling as of a load in sacrum and pelvis.

Referred to same dose, but without note of time, we have: Drawing in lower front teeth; during deep breathing, stitches in præcordia; dyspnœa, and dull stitches in lower part of chest; stitches in right sacral region. (*Ibid.*)

8.—*a.* Dr. HERING took one dose of gr. ½ of the 1_x trit., and subsequently the 3rd. From former he reports, 3 h. after, a second soft stool; 8 h. after, a third. From latter,—after 2 or 3 m., pressure in middle of r. half of brain, and cold feeling of l. side of tongue; 3 h. after, sense of fulness like congestion in the hæmorrhoids; later, an indistinct urgency to stool, and a second small stool, which was entirely

unusual, whereby the hæmorrhoids protrude very much, and there is pain, as if sore and chapped, in anus; 8 h. after (5 p.m.), again a small, thin stool (quite unusual), followed by much fulness and urging in anus; 3 to 4 h. after, on bending to l. side, short (inch-long) severe pinching stitches, deep within, at back of l. chest, and under l. nipple, at times impeding inspiration, changing in a few m. to higher up in front; in 20 or 30 m. later, similar stitches in r. chest, in same place, less severe; 9 h. after, pain as if sprained and bruised in tendo-Achillis, especially of l. foot.

The following symptoms, without date, are also referred to 3rd:—Very peculiar vertigo for some days,—during movement, he feels as if he ought to lie down; there is an internal sensation which makes everything seem insecure, and causes great anxiety, then follows coryza, first on l. side, then on r., with copious scretion of mucus, which soon becomes thick, on which the vertigo goes off; wheezing, panting respiration in e. after smoking; sensation as if a hair lay on back of hand and of fingers, many times; itching first in r., then in l., popliteal space; places scratched sore pain very sensitively.

b. The following symptoms are marked as H.'s, but without specification of dose:—After 1 h., internal pain in l. thigh, and pressure on l. parietal eminence; on 1st d., stitches on r. head, between forehead and vertex, from above inwards; pain in hepatic region, as if strained from great exertion; and some itching on small spot on inside of l. thigh, above knee. On 3rd d., ill-humour, and peevish mood; painful pimples, like nodules, in skin under chin, behind jaw on r. side; in forenoon, l. hand falls asleep while sitting; in e., after much straining, with flatus, a scanty stool, with much pressing, small and soft. Fifth d., on l. scalp, near vertex, feeling as if it had been beaten, so that pressure thereon is painful, though it does good.

The following are even without note of time:—Painful compression of head every m.; pain deep in orbits, as if in muscles, worse on r. side; pain in back of throat on swallowing; in e. much offensive flatus, loud and silent; early in m., in folds of skin near anus (l. side), a violent irresistible itching in little points; while stretching out l. hand, sense as if nerves were too short, and became dragged, with electric-like shock; indolence, and if he sits, he deliberates about standing up; in e., in open air, frequent violent yawning, without sleepiness. The afternoon was generally his time of aggravation, especially for symptoms of mucous membranes.

c. The following symptoms are vouched for by Hering, but marked Δ. Prover seems to have taken daily small doses of 1_x trit. for some days. From him are reported,—dull pain in r. side under ribs, the same in all positions, worse while standing, so that he bends himself forwards; burning thorugh whole abdomen; sensation in rectum as if loose; diarrhœic stools on m. of 7th d.; pains of weakness in ankles and wrists; for several n. wakes with thirst, drinks a glass of cold water, and breaks out into a sweat. (*Ibid.*)

9. Dr. Koch took 3x trit., and reports in m. after waking an exceedingly fine but violent stitch on under part of tongue from behind forward, which twice recurs during movement of tongue (neuralgia

sublingualis) ; l. epididymis very painful, on walking and when handled, whole forenoon ; sacral pains on waking, with lassitude ; painful weariness in walking, especially in calves, hip-joints, and inguinal region. (*Ibid.*)

10.—*a.* Dr. NEIDHARD took gr. j of 1_x trit., at 10.30 a.m. Immediately, strong sense of firmness of will, and pain in r. side of stomach, followed by commotion in lower abdomen with downward tendency. In afternoon, soreness in l. side of mouth within. At 5 p.m., crushing sensation in stomach and abdomen, with ineffectual desire to evacuate bowels, but in spite of constant tenesmus nothing results but a violent and easy discharge of flatus. Later in e. two pappy bilious evacuations, with much wind ; also gnawing pain in a carious tooth of lower jaw, which continued off and on—as did also the expulsion of flatus—all the n. During next d. all symptoms disappeared.

b. Dr. N— gave to another gr. ij of 2x trituration every e. for two weeks. First dose caused, in 5 m., weight in abdomen passing down to rectum, lasting 5 m., also a loose pappy evacuation from bowels. Each succeeding dose had less laxative effect, and finally obstinate constipation set in, with knotty passages. Prover also experienced—increased appetite ; weakness in r. hypochondrium ; pressure in anus ; paler and more copious urine, flowing easily, but requiring waiting awhile before it came ; dryness and inflammation of throat, with cough and expectoration, and weakness of chest. (*Ibid.*)

11. Dr. PREU made four provings with a trituration of one part (by weight) of Cape aloes with three of milk-sugar.

a. Took two grains. On 1st d. moroseness ; bitter eructation ; feeling of weakness in abdomen as if diarrhœa would result, and after 8 h. a copious evacuation with much flatus ; in metacarpal joint of 4th finger a frequently recurring shooting and cramp-like pain. On 2nd d. very ill-humour, seldom moderated by sadness ; peevish towards himself without reason ; dull pressive pain in anterior part of head, aversion to drinks, especially cold drinks ; distension of whole colon, especially at l. flexure, with pain, increased on movement and suddenly disappearing on emission of flatus. On 3rd d., internal restlessness and excitement ; drawing cutting pains across and through abdomen all d., with ill-humour, fretfulness, aversion to society, and indisposition to go into open air, though pain is made better thereby. On 4th d. indisposition to mechanical or mental exertion, with great disposition to desultory thinking ; now and again rumbling in abdomen.

b. Took 3 grains. At 8 p.m. sudden urging, which passes off just as suddenly ; at 9 diarrhœa ; itching and burning in anus, painful to the last degree, prevent his sleeping for a long time. On 2nd and 3rd d., flatulent distension, with overwhelming despondency. On 4th and 5th d., dull pressive pain in hepatic region.

c. Took 2 grains. On 1st d., dull pressive pain in supraorbital region ; emission of hot flatus, with burning in anus ; at n., frequent sudden urging as to soft stool with sense of gurgling in abdomen, passing off as quickly, without stool. This d. and next much rumbling in abdomen, and, till 3rd d., lassitude and inertia. On 2nd d., great

restlessness and excitement, but in middle of d. great laziness; increased appetite; transient stitches in hepatic region; distension of upper abdomen; many times urgency as to diarrhœa, and hot flatus only passes, with great relief, but urging soon returns with sensation as of a plug wedged in between os pubis and coccyx; in e., a diarrhœic stool; flying stitches in metacarpal joints of hands. On 3rd d., lassitude alternating with great mental activity; some abdominal distension.

d. Took 4 grains. On 1st d., soon after dose, troublesome sense of fulness in gastric region, followed by distension of epigastrium and hypochondria, with pain in r. hypochondrium, going away after expulsion of flatus, but returning with renewed distension; dull pressive pain in sinciput (afternoon); pressure in stomach with feeling of warmth there; in abdomen flatulence drawing about, with distension; late in e. copious evacuation of bowels, not liquid, in addition to ordinary m. one; outward drawing pain in axilla; painful drawing and stiffness of l. middle finger, especially fixed in metacarpal joint; outward pressing pain in r. thigh. During the pains everything disgusts him. On 2nd d., indisposition to movement,—and especially to mental labour, which soon fatigues; burning pain in r. eye, as if a fine current of hot air passed through axis of vision (this also on previous d.); sense of fulness in pharynx, with or without tasteless eructations; great appetite for stimulating food, with fulness in stomach; copious pappy evacuations in m.; dull stitching pain under shoulder-blades; pressure outwards in l. axilla, and dull stitching pains from thence to ulna; weariness of r. arm; jerking drawing in metacarpal joint of l. fourth finger. On the 3rd d., ill-humour and incapacity for labour, with peevish restlessness; pressive pain in forehead from this till 5th d.; dull pain in l. hypochondrium; hot flatus; distension, especially in epigastrium, and stitches as on 2nd d.; pain and stiffness in corresponding joint of r. hand. Smelling camphor relieved troubles quickly and considerably, so that for a while there followed even inclination and ability for mental work requiring clear thinking; after an h., however, the troubles returned. On 4th d., troublesome beating of external occipital arteries, with cold feeling of back of head; twinging ear-ache, crampy pain in r. ear; oppression and painfulness of whole l. side of face, extending from an inflamed spot in l. mouth and from forehead; pressure in epigastrium and up into pharynx; painful pressure under l. sternum alternating with same under r. ribs; same in l. hypochondrium; distension and drawing in abdomen; excessively painful tearing stitches in second joint of l. fourth finger; weight and weary pain in r. thigh. On 5th d., jerking-drawing, blunt stitching pain in finger, knee and elbow joints; several pimples in various places and a furuncle on upper arm. On 6th d., dull stitches in splenic region through l. chest, also in supra-orbital region, in frontal eminences, and in finger-joints. On 7th d., much exhaustion and laziness; eructations as on 2nd d.; transitory splenic stitches; distension and drawing in colon. On 8th d., lassitude and heaviness in limbs with dull stitching pains in joints. (*Ibid.*)

12.—*a.* Dr. Raue took hourly doses of 1_x trit., 3 times in e. and twice next m. At 9 a.m., tenesmus, after ½ h. small thin stool, then

for some h. griping in belly as after a chill, and hereupon headache. From 11 o'clock, feeling of dull pressure through whole head, shaking on movement as if brain lay loose in it, sensibly increased in fresh cold air, and also when hanging head down, and for awhile after rising up a beating, thumping, pulsating pain, especially in occiput; eating relieved for a time. Tongue next d. was coated whitish-yellow, and there was bad taste (as after senna leaves) all forenoon; stool occurred as yesterday, preceded by tenesmus and followed by belly-ache; and there was the same headache, but slighter. On 3rd d. no headache; slighter urging to stool all d.; two normal motions in e.

b. A woman proved tinct. and reports: Vertigo as if everything whirled round with her, worse on going upstairs and turning quickly; dull headache all over forehead, with heaviness in eyes and nausea; headache in forehead and vertex (4th d.) like a load, worse in warmth, better in cool air; no appetite; and feverish feeling (pulse 104); much eructation with pressure in stomach (2nd d.); on several d. nausea immediately after dose, must sit still to keep off vomiting, therewith pains from stomach to both sides of chest; pressure in pit of stomach through to back like a load, with soreness, rising and falling, accompanied by frequent eructations; weak feeling in pit of stomach, like a load, and burning there; diarrhœa, during gripings, after midnight, stools yellowish-green, with pain before and after; stitching pain over arch of pubes (4th d.); a sharp pain drawing through groin to middle of thigh; pain in heart, going through to under l. scapula; sacral pains, in rest and movement (2nd d.). (*Ibid.*)

13. WHITEY took 1st cent. trit., and reports throbbing headache and (e.) dryness of tongue and mouth, with increased thirst and redder lips. (*Ibid.*)

14. ZUMBROCK, after triturating drug, observed feeling like tenesmus in rectum near anus, more towards perinænum; and sudden blunt shoots from below upwards on r. side of head, in e. and following m. (*Ibid.*)

15. B. and St., each æt. 20, former of bilious, latter of lymphatic temperament, took small doses of A. (one to three grains). Symptoms observed were:

a. (St.) Violent but transient stitches in l. temporal region, increased by every step; dryness in mouth and much thirst, dry heat in mouth, tongue very red and rather dry; dryness in throat; congestions in abdomen; boring pain in umbilical region; all d., discharge of much fetid flatus; blood comes after stool; burning pain in anus after a hard stool; urine scanty, scalding; at n., heavy dreams.

b. (B.) Attacks of vertigo; drawing, shooting pain in l. inner ear, afterwards also in r.; superficial cracking of upper lip towards inside, when laughing; stitches in third right hollow molar; throbbing in same after smoking tobacco; nausea; empty eructation; eructation with taste of ingesta; rumbling, wind on stomach; fulness of stomach after drinking water, and bilious eructation; pressure and tension in r. epigastrium; increased heat in abdomen; rumbling, gurgling, rolling in belly; full feeling in belly; distension; dull stitches in umbilical region when sneezing; discharge of much flatus; pinching

before stool; bilious stool; frequent call to stool; after a pappy stool, straining, but without further evacuation; frequent calls to urinate; urine deep yellow; tearing in r. thigh; pulse quicker than usual. (BUCHNER, *Allg. hom. Zeit.*, xx, 263.)

16.—*a.* Dr. WATZKE proved A. from 20th to 26th of April, 1853, commencing with 3 drops of tincture, and increasing the dose by 1 drop each d. From thence to May 2nd he took medicine only every 2nd d., increasing as before by 1 drop daily. The dose was always taken 1 or 2 h. before noon meal. The only symptoms he could positively attribute to A. belonged to the abdomen and its functions. On the first days, he twice had increased tension and peculiar sensation in abdomen soon after dinner, with hurried call to stool, only a little brownish, slimy, half-fluid motion being passed. On 6th d. stool, though soft and copious, was passed with difficulty and repeated effort. In the last days, feeling of fulness, swelling and heat in the rectum, recurring repeatedly and especially when walking, lasting 10 to 15 m. Creeping, itching, smarting on various parts, *e.g.* perinæum, houghs, calves, inner side of thigh, were felt throughout the proving. Thinks it possible but not probable that these symptoms were due to the medicine.

b. The proving was continued in the same manner till May 20th, and from 24th to 31st 20 drops were taken daily in morning fasting. Former symptoms occurred, but more severely. He woke in m. with urgent call to stool, which continued after the (copious) motion. After dinner a small soft stool, followed by sore feeling in abdomen for some h., as though stool would come. On June 4th, when eating dinner an extremely painful cutting in the bowels prevented further eating; this went off in 10 m., and was not followed by stool.

c. The after-effects were very persistent, lasting from 6 to 8 weeks. W. enumerates them as: A difficulty in evacuating even a soft stool; a distressing, occasionally very marked, fulness and painful tension of abdomen; violent cuttings in intestines; urging to stool at unusual times and frequently during the d., which persisted even after a stool, and sometimes was followed by sticking, cutting pain in rectum; feeling of heat and swelling in rectum, usually more acute when walking; and decided weakness and powerlessness of the sphincter ani, which closed so lazily and incompletely after stool that it was difficult to wipe the anus clean. (*Ibid.*, lxxiv, 29.)

17.—*a.* A boy, æt. 5, took at 10 a.m. 3 drops of 3x. Slight bellyache followed, with tension and some inflation of abdomen, then discharge of inodorous flatus. Three d. after he complained of pain at anus and had frequent tenesmus, during which he pressed out small quantities of yellow mucus. He had intercurrent chilliness and bellyache with retraction of the umbilicus.* (J. O. MÜLLER, *Zeitschr. d. Vereins d. hom. Aertz.*, 1857, i, 38.)

b. A healthy, strong brunette, æt. 32, took at 4 p.m. 5 drops of same potency. Two h. afterwards came on intermittent tearing in

* Dr. M. thinks it necessary to mention that the boy had sat on a cold doorstep. This, however, he had often done before with impunity; and on the present occasion the bellyache, tenesmus, and chilliness preceded his doing so.—EDS.

head, here and there, with heaviness, confusion, and vertigo. To this were added scotomata—flickering or whirling before eyes, yellow rings that moved in field of vision in circles and were now and then replaced by shining bodies that shot across eyes. Eyes felt swelled and dim as if she had not slept for several nights. The head symptoms were worse in the dark, better in the light. She had also inclination to vomit when moving about hurriedly; rumbling and swashing in stomach and abdomen; and very restless sleep, in which she threw off the bedclothes. She was very prostrate and weary, as in nervous debility. On rising from bed, there was pain and shooting from sacrum to anus, hips and abdomen, which went off as she moved about. (*Ibid.*)

c. Dr. M— himself took 20 drops of same. He had eructations of gas with slight pain in stomach and flow of saliva; pinching belly-ache in umbilical region, with chilliness; three thin, pappy, dark-coloured, scanty stools during d., preceded by rumbling and pinching in hypogastrium, and followed by tenesmus-like pressure; irregular contraction and unusual dirtiness of anus after evacuation, and sense of increased warmth in rectum and anus in intervals of stools. There was also tickling, creeping, and spotty redness on glans penis, especially about corona and frenum; and urine was scanty and dark. (*Ibid.*)

18. Dr. A. Fischer gave to five persons 4 to 6 drops of tinct. every m., for 3 d.

a. A woman nursing a two months' old baby had, on 4th d., cramps in hypogastrium and r. groin, going down r. thigh beyond knee; thereon followed metrorrhagia; she felt ill all over, and very sensitive, and had tension and compression in nape, behind both ears. Her baby took a drop of tincture and had a green motion in 4 h.; next d. was fretful, groaning during sleep, and screaming on waking (as a rule, he slept quietly), with copious sweat all over.

b. A woman, æt. 28, had on 1st d., at noon, a whistling in throat, as if something had fallen into trachea, and impeded respiration; dyspnœa; pressure behind sternum; scraping in larynx.

c. In n. after third dose, a single woman, æt. 30, dreamed at midnight of being seriously ill, and awoke with oppression at chest, breathing whistling and painful, larynx tight as if she would be strangled, throat dry, tongue dry and stiff; she cried, and was obliged to sit up in bed. This lasted 1 h., then came several fits of coughing, and gradually all passed away.

d. A child, æt. 3, had, early in middle of d. after second dose, a soft, very abundant motion. On previous d. passed blood at stool, as from piles.

e. A child, æt. 4, 2nd d. had pains in nose, followed by coryza; on 3rd d. had a stool, consisting of undigested material, with traces of blood. Being slightly chilled from uncovering himself in bed, was seized, during n., with hoarse, rattling, low-pitched cough, as if all the trachea were raw, harsh, and full of phlegm. On 3rd d. the child was troublesome, crying at the slightest thing.

f. The following symptoms are not referred to the individual provers:

In 15 m., nausea and feeling of emptiness in stomach, with digging

around navel. In 30 m., feeling of wind rising through throat, as before sickness. In 3 h., quivering and shaking in larynx and tongue, for some m.; cough, followed by a sputum size of bean, yellow and tenacious; stitches in sacral region on bending. In 4 h., throbbing in l. side of head, at first painless, then aching for ¼ h. at a time, head much affected. In 6 h., burning, as of fire, in l. nostril; stitches under r. side in region of liver. At 4 p.m., pricking in l. hypogastrium, deep in body, as if in l. ovary and uterine ligaments; in e., headache on l. side, with tension; hoarseness and slight cough, with continual expectoration, provoked by tickling and scraping in larynx, thirst and dryness in throat (cough continued for several d., worse towards m.; on 1st d. there was pricking in r. side of larynx at each fit, and raw pain when expectorating); pressing pains in r. side, under armpit, extending in direction of r. shoulder towards back. On this 1st d. motions were soft and pasty, later solid or absent. On 2nd d. a round, red spot at edge of l. lower jaw, between lower margin, angle and chin; motion followed by sensation of burning at anus; urine scanty, twice only in 24 h., and little at a time, containing yellow, branny deposit; pain under nail of l. forefinger (in one of the children). On 2nd n. a man dreams he is mad, and that everyone is watching him. On 3rd d. tearing pain deep in r. eye, lasting some m.; rumbling in belly, most frequently in hypogastrium; piercing and twisting pain around navel; pricking sensation in rectum (afternoon); the third finger of r. hand, in which there is a torn sensation, presents a kind of ulcer on first phalanx, it is red, and seems inflamed. On 4th d., pains on r. side of forehead; in two subjects, nausea, mounting up into throat, with inability to vomit; from afternoon till e., tearing sensation in r. thigh above knee; stitches in r. knee (in three provers); in e., pain, as if strained, in outer ankle of l. foot while walking; at n. ineffectual tenesmus. In e. of 1st 5 d., headache, involving whole head, and twitchings above r. eyebrow, deep in r. side of forehead. On 6th n., when but just in bed, sudden and clashing explosion in l. ear, like breaking of glass,—the noise seems deep in head, whence it goes towards r. ear.

Without note of time are mentioned:—Jerking pain in r. parietal bone towards vertex, with pain when touched; head affected, with turns of nausea; menses appeared 6 d. too soon, with a sensation of cold, blood dark, flowing abundantly, with clots; coryza and heat of nose; stitches in r. chest, under (female) breast; sleeplessness before midnight (three provers), from midnight to 5 a.m. (in one); dreams of monsters, and of all kinds of animals. (*Journ. du Disp. Hahn.*, Bruxelles, iii, 235.)

19. Health sound, pulse 65, regular; took at 7 a.m. 10 drops 1_x dil. in ½ oz. water. 7.2. Increased saliva with eructations. 7.5. Itching behind knee, also of scalp; distension of stomach. 7.7. Itching in various parts; distension and rumbling in bowels. 7.15. Borborygmus and drawing in bowels very annoying. 7.27. Drawing in r. tibia; burning in r. foot; eructations. 7.45. Pressure and drawing in hypogastric region, with drawing in spermatic cords; griping in transverse colon followed; passed flatus with relief. 8.10. Drawing in cervical region; legs and feet cold. 8.20. Pulse 75; eructations; arms feel weak;

hands cold to touch; chilliness on moving; cramp in r. foot. 8.45. Stool, unusually free and forcible, with noisy flatus, followed by drawing in bowels and extremities. 12.15 p.m. Slight nausea, griping and noisy rumbling in bowels; cold feet are now hot; pulse 90; normal urine. 1.30. Hearty meal followed by urgent stool with heat and irritation of anus. During p.m. increased rectal irritation with loud rumbling; pulse 94. 8.0. Gloominess and slight headache; some languor and thirst; n. sleep interrupted by hæmorrhoidal irritation and unusual sexual excitement; during sleep seminal emission without dream. Waked at 6 a.m with urgent call to stool, difficult to retain, copious and loose, followed by hæmorrhoidal irritation; headache and languor until after breakfast. Occasional sneezing during the day. (A. W. WOODWARD, MS. *Communication.*)

20. A. acts in small doses on the nervous plexuses and vessels of the abdomen; in stronger doses it acts as well upon the intestinal canal, especially the large intestine; and produces, easily, and without inconvenience, increased and watery evacuations, though after some interval, at times as long as 24 h.; in very strong doses it acts as a very drastic purgative, with griping, at times with bloody stools. (VOIGTEL, *System der Arzneimittellehre*, ii, 2, 114.)

21.—*a.* In large doses A. acts as a purgative. There are, however, some peculiarities attending its cathartic operation deserving of notice. In the first place, these effects are not so speedily produced as by some other purgatives; for 8, 12, and sometimes 24 h. elapse before they are produced. Secondly, A. acts especially on the large intestines, and a full dose is in some persons apt to produce heat and irritation about the rectum, and tenesmus; and in those troubled with hæmorrhoids, it is said not unfrequently to increase, or even to bring on, the sanguineous discharge. The purgative effects of A. do not arise merely from its local action on the alimentary canal, since this effect is sometimes produced when the medicine has been neither swallowed nor given by the rectum; so that it appears to be of a specific kind.

b. The uterus, in common with all the pelvic viscera, is stimulated by A. A determination of blood towards these organs, and a fulness of the blood-vessels (especially of the veins), are produced, and thus uterine irritation and menorrhagia are apt to be increased by it. (PEREIRA, *Mat. Med.*, sub voce.)

22. If pushed far, a slight degree of enteritis may be set up. The motions are highly coloured, like bile, soft, seldom watery. (WIBMER, *Wirk. d. Arz. u. Gifte*, i., 105.)

23. Administered in small doses of five to thirty centigrammes, once or twice a day, A. causes slight colic, followed by expulsion of one or several diarrhœic stools. We see that the action of this purgative is very gentle; stools rarely occur in less than 5 or 6 h., and it often happens that patients do not go to stool until 24 h. after the administration of the drug. The first effect, therefore, is to increase the number of stools or to facilitate them, and it also stimulates the functions of the stomach, but only in those cases where the weakness of digestion is not accompanied by signs of chronic gastritis. If the use of A. is continued for some time, we do not fail to see symptoms

of sanguineous flux towards the pelvic viscera; there are heat and feeling of weight towards the extremity of the intestinal canal; excitement of the genitals and increased venereal appetite, with more frequent desire to urinate; in women, pain and weight in the womb, and in the loins; increased flow of whites; uterine colic more painful at the period, and increased menstrual flow. In heavy doses, A. acts like all drastic purgatives. (TROUSSEAU and PIDOUX, *Mat. Med.*, sub voce.)

24.—*a.* A. evidently acts by irritating the mucous membrane of the intestines, and producing a larger secretion; this is manifest from the large quantity of mucus often passed out with the evacuations when aloetic aperients have been taken. . . . When administered in larger doses than 2 to 5 gr., it is apt to cause griping, heat about the anus, and hæmorrhoids; it also loses its effect of properly emptying the large intestines, producing small frequent evacuations, consisting principally of mucus, and attended with tenesmus, the abdomen being at the same time distended and tender, the patient complaining that "his bowels feel as if scraped;" the pulse is sensibly quickened, and a sense of distension is felt about the head. The long-continued use of aloetic aperients has a tendency to produce emaciation, and their action upon the bowels becomes capricious and uncertain, sometimes failing to produce any effect, and at others producing frequent small evacuations, as before described; the mucus being occasionally passed in long membranous bands, and sometimes in substances resembling pieces of flesh. I have also seen two cases in which the mucus passed along with the evacuations had all the appearance of fat.

b. I have seen cases of enteritis which I believed to be traceable to the inordinate use of A.

c. I have many times found that when squill, along with other diuretics, failed to act, the addition of A. has speedily produced a copious diuresis. (GREENHOW, *Lond. Med. Gaz.*, xix, 269.)

II. *Poisonings.*—1. A singular case occurred in Germany a few years since, wherein a medico-legal question arose respecting the poisonous properties of A. A woman aged 43, not labouring under any apparent disease, swallowed 2 dr. of powdered A. in coffee. Violent diarrhœa supervened, and she died the following morning, 12 h. after having taken the medicine. On inspection, the stomach was found partially, and the small intestine extensively, inflamed. There was nothing else to account for death, and this was referred to the effect of the A. (TAYLOR, *Poisons*, sub voce.)

III. *Experiments on animals.*—1. Moiroud injected into the veins of a horse ʒiv of A. dissolved in water with a little alcohol, and the next d. ℥j more, without any other effect than the evacuation of a large quantity of urine. The dung, however, was enveloped by a thin pellicle, formed by altered intestinal mucus. (PEREIRA, *op. cit.*)

2. To a young dog gr. iij were given twice, once 14 h. and again 2 h. before death. Liver was quite natural, moderately full of blood, gall-bladder moderately distended with yellowish bile. The whole length of the intestinal canal was tinged yellow by the bile which had

flowed out,* but was otherwise normal. There was accumulation of oily matter in the central cells of the lobules of the liver; it also contained distinct whitish spots about the size of a pin's head. The cells were generally pale granular bodies, and did not contain more than a very decided yellow tint. The ducts were very distinct, being rendered opaque by oily deposits between their nuclei. (HANDFIELD JONES, *Med.-Chir. Trans.*, xxxv, 255.)

ALUMEN.

Alum. Potassic-Aluminic sulphate. $K_2Al_24SO_4,24H_2O$.

I. *Provings.*—1. Dr. JEANES took 3rd cent. trit. (how is not stated). On 8th d. had bruised feeling on lower edge of l. orbit, on pressure or on moving lids, lasting 2 d.; and piles, with aching within anus. On 11th d., three yellow diarrhœic stools, like an infant's. (HERING, *Mat. Med.*, vol. i, 1873.)

2. N. N— took 5 daily doses of same,—1st 3 in e., 4th and 5th in m. After 1st dose, slept well; in m., 1 h. after rising, weariness, and for 3 h. twitching in limbs, particularly in arms,—therewith much excited. In ½ h. after 2nd dose felt very warm in l. side, opposite shoulder, internally, and also very tired; but slept well. Same sensation at same interval after 3rd dose; n. again good; in m. some headache over eyes, and pain in l. chest. After 4th dose, very soon tired; warm ebullitions like spasms spread over whole trunk, particularly back; no pains, but trembling of muscles; towards 2 o'clock pains in chest return, better when walking. In 15 m. after 5th dose a kind of cramp in back just below hips on both sides; very warm ebullitions; the sensation went from the hips up the l. side; it so frightened him that he took a cup of coffee to remove it. (*Ibid.*)

3. Dr. RHEES proved same (manner unknown). In ½ h. after 2nd dose had rheumatic pains in arms and chest, and over l. eye. Other symptoms are not dated: they are—Pain in head, coming and going, from place to place; sensation of fulness in chest, also in arms (especially after supper); stitching pain down middle of chest, later in r. side; severe pain in l. shoulder; pain in r. arm as if a string were tied tightly round it; bruised pains in joints of arms, hands and feet; rheumatic pain in l. hand and all finger-joints; pain in both knees, particularly in r., when walking; uneasiness in knees, with pain just above them; rheumatic, and bruised, pain in whole body; sensation, all forenoon, of inward heat. (*Ibid.*)

4.—*a.* Miss R. A. RHEES took 6th dil. (manner not stated, but evidently in repeated doses). Her symptoms were—Dull heavy pain in head, particularly in back part; in 3rd week unusually good appetite and thirst, on 21st d. little appetite; after a meal, heaviness in stomach and throbbing as in an abscess, also distension at epigastrium; 2 h.

* Dr. Rutherford, in his recent experiments on dogs, found A. an undoubted cholagogue.—EDS.

after taking it in m., seized with nausea, faintness and weakness, lasting till afternoon, when pain returned; with nausea, nervous restlessness and excitement, mental rather than bodily; on another occasion nausea and faintness, accompanied with sick, griping pain in stomach and loathing of food; on 22nd d. nausea in m., and so weak that she could not sit up, felt a heat in stomach with great thirst, relieved by drinking cold water; at 11 a.m. sinking sensation at stomach, after eating something she felt stronger, but had for 15 m. a violent throbbing there, extending to heart, and violent palpitation; for several weeks after proving distension at epigastrium after eating; soon after taking it in e., felt a slight pain or binding sensation in her breast, especially on r. side, which disappeared on (almost immediately) retiring to rest.

Besides these symptoms, Miss R. had two singular attacks while taking drug, which she thus describes:

b. "Between 3 and 4 p.m. I felt a pain in my r. arm as though a cord were drawn tightly round it, just below shoulder, occasioning great fulness of blood-vessels and deprivation of strength. The pain was dull and heavy, not general throughout the arm, but rather in lines extending in different directions from the ligature which apparently bound it; the weakness was such that I could not hold the needle which I was using when the pain commenced. The attack began suddenly, continued for a few moments, and then abated, though it did not leave me entirely, and returned at regular intervals during remainder of d. and e. Renewed doses increased pain in arm, which is this e. quite severe." Writing apparently of and at same time, she describes a "sensation as if a cord were tied around the leg, under r. knee; pain extends downward and upward, but is confined to lower leg. To-night a similar feeling, though much slighter; the pain is on the under part of the limb only."

c. On 5th d., about 3.45 p.m., sitting in church, was seized with a sharp, steady pain in the stomach, accompanied with the most death-like faintness she ever remembered to have felt, with extreme sickness and immediate loss of strength. A cold sweat covered her, she thinks she must have been deathly pale, for she felt as though the blood (which had at first been driven to the head by the suddenness and severity of the pain) were leaving it and the extremities altogether; they were quite cold; her sight grew dim, and she became so faint that she expected every moment to fall from her seat. The pain in stomach felt as though it would draw her double. The attack lasted, she thinks, about ½ h., after which violence of pain gradually abated, faintness passed off, chilliness gave place to heat, and the blood rushed to her head with such a force that she could hardly hold it up, or keep her eyes open, though quite conscious of what was going on about her. After service, she was able to walk slowly home, though very weak, feeling very much as if she had been ill for a month. She felt the weakness especially in her back, although she had no pain there; but during rest of e., whenever drawing a long breath, it appeared to come from a spot on each side of spine, about middle of back, on line with inferior angles of scapulæ. Effects passed off with night's rest, and there was no return of symptoms. (*Ibid.*)

5. Miss ALICE RHEES, a younger sister of above, commenced proving same dilution, but next d. had similar attack at noon. Was seized instantaneously with most acute pain in stomach; was found sitting drawn together, with knees against breast and face like a corpse, deathly pale, lips blue. Chamomilla relieved, but there remained great vertigo and nausea; she complained of being very cold, but did not shudder; great weakness, as after long illness, with headache lasting all afternoon. (*Ibid.*)

6. Mrs. RHEES experienced similar symptoms from the 12th, of which she took repeated doses. The attack occurred on two successive m., about 1 h. after rising; 1st d. pain was absent, but nausea, faintness and coldness were very pronounced, 2nd d. pain was severe. Dr. HUSEMANN also, while taking same potency, twice had sudden sharp pain in region of stomach. (*Ibid.*)

7. Tr., friend of Dr. Husemann, took 6th on May 11th and 12th. On m. of 12th and 13th, woke with pressing headache over eyes, which lasted till 10 a.m., relieved by drinking cold water; about 9.30 p.m. same headache, with vertigo, lasting till bedtime, lessening after lying down to sleep. Also on both mornings, while washing and dressing, pains in l. chest, near middle of sternum, lasting till 9 a.m. He also had tickling in larynx, causing cough; tongue rough, and as if scraped, in m.; lassitude in whole body, especially in l. leg; very light and restless sleep. On 3rd d., in m. on rising, he spat a lump of coagulated blood. (*Ibid.*)

8. BARTHEZ took, fasting, ʒss of alum in ℥j of water. Immediately contraction in whole mouth, lasting ¼ h., with very painful pressure in stomach. During rest of d. no marked symptoms. After 3 d. took ʒj in ℥ij water. This was followed by more violent contraction than before; appetite was not diminished, but on the contrary he thought it improved, and digestion rather better than usual. After this took doses increasing every time by ʒss, till he took ʒiiss at once. Thereupon he experienced violent urgency to vomit, lasting nearly ¼ h., but without vomiting. Throughout d. no marked disturbance.

The inclination to vomit seemed to depend rather on the astringency and disagreeable taste of drug than upon any irritating influence on stomach. After 6 d. took fasting ʒiij at a dose, and in 3 or 4 m. vomited twice a portion of solution. Through d. no symptoms of any kind; only 2 or 3 d. after stools were more difficult than usual. The vomiting spoken of occurred without effort and without previous nausea. (*Recueil des Mem. de Med.*, 1835.)

9. WIBMER, in experiments on self with alum in doses of gr. iij in ʒv of water, taken several times a day, observed dryness of mouth and throat, thirst, diminished frequency and increased consistency of stools. (*Wirkung*, &c., I, 114.)

10. In the experience of Bégin, and also of Barbier, the long-continued use of small doses of alum produces cough in persons with sensitive bronchial tubes.* (LEWIN, *Op. cit.*, p. 51.)

* Prover No. 6 (but no other) experienced hoarseness, and even loss of voice, with tickling cough on talking.—EDS.

11. A. W—, health sound, pulse 65, regular, took 10 gr. of 1_x at 6 a.m. Soon, watery eyes, followed by sneezing. At 6.10 tasteless eructations and shifting flatulence. 6.15, drawing in plantar surface of r. foot, afterwards in epigastrium. 7.0, free and watery urine (had been relieved at 5.30). 7.30, cramp-like drawing and stiffness in cervical region. 8.0, discharge from eyes has become glutinous and annoying; occasional wandering cramps. 8.30, urination as before; pulse 76. 9.0, no appetite for delayed breakfast; slight irritative cough. 9.45, urging to stool with much borborygmus; ringing in r. ear; cough while exercising. 10.0, burning and itching in r. outer canthus. 10.35, urging to urinate. 11.30, easy fatigue from short walk, followed by backache in lumbar region; pulse 86. 12.45, faint as from hunger; palpitation; much abdominal flatus. 2.0, languor and headache; voice uncertain; nostrils and mouth dry; no thirst. 4.30, loose stool, much flatus; hæmorrhoidal irritation followed. Was constipated for 2 d. afterwards; urine was scant and high coloured. (WOODWARD, *Med. Era*, Jan., 1885.)

12. The received theory of the action of alum is that it causes a contraction of the blood-vessels; but we have failed in most cases to see any evident alteration, as ascertained by direct measurements on the mesentery of the frog, in the size of the blood-vessels when alum solutions were dropped upon them. In a few cases an expansion, and in two only a slight contraction, was noticed; the capillaries themselves were generally expanded. Nevertheless, a stasis in the circulation often occurred. (NOTHNAGEL and ROSSBACH, *Arzneimittellehre*, sub voce.)

II. *Poisonings.*—1. *a.* The reaction of A. with albumen furnishes a simple explanation of the corrosive action of the salt in solid form or in concentrated solution. The great rapidity with which a case observed by Ricquet (*Journ. de Pharm. et Chim.*, Oct., 1873) proved fatal, and some symptoms noted in previous cases of poisoning (tremor of muscles, spasms, depression, &c.) give reason to suspect that A. exerts also a constitutional action, the more so as in Ricquet's case the local lesions were found at the autopsy comparatively slight, and entirely out of proportion to the rapid course of the poisoning.

b. Of all the symptoms the most constant are the pains in the cavity of the mouth, œsophagus and stomach, which are experienced immediately after taking the poison, and also the vomiting, which comes on very soon, and is sometimes bloody. Ricquet also observed severe dysphagia, torturing thirst, and retention of fæces. Several writers mention great weakness of the muscles and depression. The consciousness is unclouded. There is great anxiety, and sometimes a convulsive tremor of the muscles is observed. The pulse is exceedingly small and frequent. After repeated fainting fits and a considerable reduction of temperature below the normal point, death ensued within 24 h.

c. At the autopsy, yellowish-grey deposits were found on the mucous membrane of mouth, pharynx, and œsophagus; tongue and palate were swollen. Stomach, intestines, and kidneys were hyperæmic, but without noticeable loss of substance. (BOEHM, *Ziemssen's Cycl.*, xvii.)

III. *Experiments on animals.*—1. *a.* Orfila gave ʒvij of crystallised alum in powder to dogs; the animals retained it from 10—30 m., then vomited, and in an h. were apparently well; ʒij of burnt alum in ℥iv of cold water occasioned vomiting only. When œsophagus was tied to prevent vomiting death took place in 5 h., with symptoms of great exhaustion and diminished sensibility. On P.M. examination, mucous membrane of stomach was found inflamed in whole extent.

b. Bourgelat has seen a phthisical condition induced in horses by the use of alum in too great quantities. (PEREIRA, *op. cit.*, sub voce.)

ALUMINA.

Argilla, clay-earth. An oxide of aluminium, $Al_2O_3 3H_2O_1$. Prepared by precipitation from solution of alum.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part II of original, Vol. of translation. Contains about 400 symptoms from author, and 760 from six fellow-observers.*

2. HARTLAUB and TRINKS, *Arzneimittellehre*, II, 80. Contains 979 symptoms from four observers, Hartlaub, Nenning, Schreter, Trinks, obtained some with 1st trit., most with 6th dil. They will be found incorporated with Hahnemann's schema.

AMBRA GRÍSEA.

Ambra Ambrosiaca, L. Ambergris. A substance found floating here and there on southern seas, supposed to come from the sperm whale.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pur.*, Vol. VI of original, Vol. I of English translation. Contains 920 symptoms from Hahnemann himself and one other.

2. BOSWELL noticed, after taking 30 gr., quickness of pulse, increase of muscular power and of sight and hearing; also greater activity of mind, and of the sexual power. (*Hom. Examiner*, N. S., II. 1846.)

AMMONIACUM.

Dorema Ammoniacum, Don. Nat. Ord., *Umbelliferæ.* "Gum ammoniac" is the resin which exudes from the stem.

I. *Provings.*—1. C—, a healthy man, æt. 27, bilious constitution. 8th June, took at 7, 11, and 3 o'clock 30 drops of a solution of 32 gr. in 3 oz. distilled water. No effect, except that he felt a desire to take more.—9th. Morning, after stool, took ½ oz. of the solution; at 3 p.m. 1 oz. At 5 p.m., felt bruised pain in r. arm, especially about elbow-joint; afterwards weariness of limbs, tendency to perspire, drowsiness.—10th. At 6 a.m. ¾ oz. Soon afterwards soft stool, yawning. The daylight, though it is cloudy, hurts his eyes. At 10 a.m. shooting in r. hip-joint when

* For an excellent analysis and reconstruction of this, see Dr. Allen's article in *North Amer. Journ. of Hom.* for Nov., 1882, p. 268.

seated, full feeling up into throat. After 12 n. repeated shooting in r. pudendum, near spermatic cord, returning in e. E., heaviness of limbs, shooting in various parts of body, in l. big toe, l. knee, chest, never lasting long.—11th. At 7 and 9 a.m., 6 gr. On rising from bed, felt laziness and drowsiness, with depression of spirits, heaviness and fatigue of body. Later, sinciput somewhat confused, at same time weakness of eyes, weight in loins. Pulse small and heart not quickened. E., confused head, incapacitating him for work. At 10 p.m. drawing in middle toes of l. foot.—12th. Night restless, woke often and dreamt much. At 6 a.m. took 12 gr., at 9 a.m. 14 gr. dissolved in water. Furry sensation in occiput. Frequent yawning, bringing tears into his eyes; shooting in l. shoulder-joint; bruised pain in l. wrist-joint, afterwards in r.; eructation now and then; pressure in sinciput; full feeling in fauces and œsophagus, almost with inclination to vomit; lame feeling in l. arm; drawing in r. middle finger; pressure in rectum when seated. At 3 p.m., took 12 gr. Soon afterwards tearing and drawing in l. sole; prickling throbbing in l. upper eyelid, recurring next d. with subsequent pressure; late at n. cracking in instep when moved; drawing in l. zygoma toward temple; shooting in r. spermatic cord. As his nights were restless and unrefreshing, he had to interrupt his proving.—19th, 7 a.m., took 13 gr. No effects. At 3 and 8 p.m., took 13 gr. At 4 p.m., tightness and pressure in chest, later weight of head; burning, then 5 m. after shooting in r. big toe; pain in r. leg above knee, making walking difficult; prickling in l. shoulder-joint to over deltoid muscle, almost going off by pressure; oppression of l. lower half of thorax, soon followed by pressure deep in it; shooting in r. spermatic cord when walking. At 10 p.m., bubbling in l. ear when scratching occiput.—20th, 12 gr. of the resin rubbed up into wafers; later of falling asleep, restless sleep full of remembered dreams which are not disagreeable; stool occurred in the e., very unusual. All day discomfort and dull spirits.—21st. Sleep full of dreams, disturbed. Constant shooting and pressure in l. leg, at l. side of knee, on head of tibia. At 6.30 a.m., took 13 gr. in wafers, the same at 7.30 and 9 a.m. Pressure in upper part of eyeball. Pain in middle of l. foot. At 10 gurgling in abdomen with confusion in sinciput; drawing in l. spermatic cord, frequently occurring; discomfort; pressing above r. ankle; the pain below knee returns when walking; cannot read without straining eyes. After dinner, at 1.30 p.m., fæcal pappy stool, after an insufficient stool in m. At 4 p.m., 10 gr. The urine contains much lithates; weight and pressure at end of dorsal vertebræ; shooting in l. side of joint of l. little toe where the skin is rather thickened; undecided pain in l. knee.—22nd. M., pappy stool; itching on hairy scalp, more in middle and below, so that he must scratch. At 3 p.m., 13 gr. At 5 p.m., prickling under r. metatarsus; soon afterwards soft stool mixed with much flatus, preceded by gurgling in abdomen; rheumatic pain over l. instep; frequent sneezing, immediately followed by increased mucous secretion from nose; rheumatic pain in l. side of pelvis; recurrence of prickling in r. metatarsus. At 9 p.m., while seated, feeling as if l. knee were swollen, with increased warmth in it and prickling in hough; weariness on the slightest exertion; itching on r. side of pudendum.—22nd, at 7 a.m., 30 gr. Constant drawing in r. spermatic cord; tensive pressure in pubic region; slight griping in belly. After 9 a.m., very unsatisfactory soft stool; tearing in right tibia; weariness of r. foot, the point of which he strikes against steps when going upstairs; tearing in l. side of head; gouty pain in l. big toe so that he cannot tread on it, repeated several times; drawing and tearing in r. wrist-joint; itching in hairy scalp of l. occiput where the hair terminates; some pimples there; the itching recurs in e.; prickling and tearing in l. metatarsus. Sleeps interruptedly till 3 a.m., thereafter no more sleep; towards m. shooting in l. side of r. knee.—25th. 22 gr. For the last 2 d. after urinating some drops of urine escape; tearing deep in r. external meatus auditorius; sensation as if something were striking deep down in throat, making him swallow; pressure in r. sinciput at 10 a.m. Itching in occiput where the hair terminates, where some pimples have formed; prickling at limit of hair on head, itching when scratched, repeated next d.; prickling in upper half of eyeball; shooting and tearing in l. shoulder-joint; shooting from region of r. submaxillary gland up into the mouth; rheumatic pain in whole r. arm at 12, n.; tension in r. knee-joint when walking; burning in orifice of urethra, gradually lessening up the urethra; sleep restless; dreams troublesome.—26th. Violent shooting in r. shoulder-joint; tearing on l. metatarsus; stabs as with a knife in middle of scalp in quick succession; slight roughness of throat;

shooting at root of penis. Repugnance and discomfort whether he walks or sits. Flat taste; stool delayed till e.; dimness of sight in e. and especially in m. after rising, with increased warmth of eyes. For several d. towards e. the respiration shorter and more superficial, with anxious discomfort. Shooting in various parts. The eyes feel dry, with feeling of a foreign body between upper eyelid and r. eye. —29th. He experimented with the fluid distilled from gum ammoniac. Besides the above symptoms, the itching on the hairy scalp was greater than before; some vesicles appeared on the l. side of occiput where the hair terminates, they made him scratch and disappeared in the e.; the same thing occurred in r. whisker where a single vesicle appeared. E., shooting in r. axillary gland. The following d. before 9 a.m., when walking there was violent shooting above r. hip-joint, so that he must almost limp. This pain, which was violent when sitting in stooping position, diminished during the d. and was nearly gone next m. (BUCHNER, *Hygea*, xiii, 212.)

2. A woman, æt. 42, took 30 to 40 drops of the watery solution, and had pressure on chest, nausea with paleness of face. (*Ibid.*)

3. St—, æt. 26, of choleric temperament, had enjoyed good health from a child. 2nd July. First, 4 p.m., took 12 gr. After 3 h. had flying stitches in l. lumbar region, increased by inspiration. Next m. flat taste, rather sweetish; tongue with thin yellow fur; some tightness of chest, with stitches in l. side of chest when inspiring.—3rd. Afternoon, same dose. E., twitching pains in l. thigh in course of crural nerve; tightness of chest sometimes. Next d. on waking, nose, mouth, and throat tiresomely dry; tearing in both ankle-joints, increased secretion of urine, perspiration; scanty stool.—5th. No additional symptoms.—6th, 18 gr. Repeated tearing in wrist and ankle-joints; next m. dryness of mouth more marked, as also pressure on chest. After 10 d. he still had the dryness of mouth on waking in m., also occasional tickling in trachea which did not cause cough; after 12 d. the dryness of mouth was gone, but the occasional tickling in trachea continued; the bowels still constipated for 2 or 3 d.; the evacuations of firm consistence. (*Ibid.*)

4. A man, æt. 33, subject to constipation, and in spring and autumn to sore-throat and catarrh, and having had in the past winter rheumatic gastric fever followed by pneumorrhagia. Quite well for the last 9 months.—15th Jan., 7 a.m., 1 gr. of gum ammoniac. Hot feeling and slight burning in scrob. cordis on a place the size of a child's hand, dry roughness of tip of tongue and hard palate. Eructation of air smelling of the resin. All these symptoms gone in 1 h.—16th, 2 gr. Obtuse shooting, twitching pain in cæcal region, going off in a few m., but returning when changing posture, and especially on turning over on r. side. Dry roughness on posterior part of hard palate, slight pressure in scrobiculus. Eructation of air; transient return of cæcal pain. Discharge of much flatus at n.—17th., 4 gr. Bitter rancid taste; pressure and weight in pubic region; transient obtuse shooting pain in cæcum, but less than yesterday. Half an hour after dinner slight transient cutting below navel.—18th., 6 a.m., 5 gr. Taste like yesterday; pressure in scrob. cordis; weight and pressure in pubic region; twitching drawing in l. groin. The pressure in scrob. and the feeling of weight and pressure in pubic region come alternately. Eructation of air. Transient shooting pain under r. short ribs at 9 a.m. Chilliness running from feet up over back (10.30 a.m., draught of air?); slight recurrence of cæcal pain.—19th., 6 gr. Obtuse shooting, transient pains between l. crista ilii and navel (immediately); later on similar pain in cæcal region. Some flying stitches through fossa navicularis. Obtuse shooting twitching pain in two l. healthy lower incisors (7 a.m.). Pressure in scrob., but less than yesterday. Throbbing and uneasiness in whole body, preventing sleep for a long time after going to bed, though he had drunk less beer than usual.—20th. No med. On awaking, m., purulent secretion in both inner canthi of eye, especially copious in r. Continued obtuse shooting pain in r. lower lid, very much aggravated by moving lids, touching, and stooping; no perceptible change in the appearance of eyes. Restlessness and throbbing after going to bed, hindering sleep for a long time.—21st., 4 a.m., 7 gr. Feeling of warmth and pressure in scrob.; fell asleep again and dreamt much. After waking obtuse shooting transient pains under short ribs; similar pains in cæcal region. Eyes tense, obtuse shooting in them on stooping; slight swelling under tarsus like a swollen gland, but nothing can be detected by finger. Flying shooting pains in l. temporal region (1 p.m.); constipation.—22nd., 4 a.m., 10 gr. Pressure in scrob., and later in umbilical region. Single flying

stitches in cæcal region (7.30 a.m.). Pain in eyes less; drawing, shooting, slight pains in l. spermatic cord (11 a.m.). Two copious stools. After lying down at night great trembling (heart's beats stronger but not quicker) in chest and carotids, making it difficult to get to sleep.—23rd. No med. 8 a.m., some small transient stitches under r. short ribs; repeated noon and e. On l. lower lid some sensation as yesterday; tensive, pressive, dull-shooting, transient pains in extensor muscles of r. forearm and in elbow-joint. Transient stitches in r. ear (12 noon). On lying down at n., throbbing in heart and carotids; unusual fatigue of eyes after reading.—24th, 2 a.m., 12 gr. Small flying stitches under r. ribs in cæcal region, and after rising, also in r. ear. Pains in lower eyelids quite gone; only a small hard gland to be felt in r. lower lid.—25th, 26th, and 27th. No med. The cæcal pain occurred for one or two m. in the m. of the 27th. No other symptoms.—28th, 9 p.m., 18 gr. Pressure in stomach (immediately). In a few m. the former cæcal pain. At night many confused dreams, restless sleep. Strong tiresome palpitation of heart, extending to below scrob., after going to bed at night, aggravated by lying on back and l. side, less when lying on r. side, preventing sleep for a long time.—29th. No med. Dull drawing pain in r. trochanter (at 4 a.m. for 1 h.). Dull stitches in r. knee-joint and l. elbow-joint (1 p.m.) Constipation. E., palpitation, restless sleep.—30th to 9th Feb. No med.—1st Feb. From 3.30 to 5.30 p.m., obtuse shooting pain in r. trochanter major, fatigue of leg. Stool became regular.—9th. 9 p.m., 27 gr. In ½ h. flying short stitches under l. short ribs, similar pain between anterior superior spinous process of l. os ilii and navel. Many dreams at night, which did not disturb his sleep. M., discharge of much rancid-smelling flatus; short rheumatic pains in l. upper eye tooth. Chilliness ½ h. after dinner (1 p.m.) from up over back. Hard sluggish stool. Cross humour. E., fatigue in both hip-joints (several h.). Obtuse painful drawing in testicles (several m.).—11th. No med. The peculiar dull shooting pain in l. hypochondrium. Short rheumatic pain in r. metacarpus, elbow, and shoulder.—12th. M., the peculiar obtuse shooting cæcal pain alternating with the pain on l. side.—From 13th to 16th. No med. Difficult stool; even when there was call to stool the rectum was so torpid that the evacuation could only be performed with an effort.—17th. No med. Regular stool. For 3 d. in m. coughing up of thickish phlegm from larynx.—18th, .9 p.m., 30 gr. Pressure and tension in scrob. Slight twitching shooting in l. short ribs up towards chest. Pressure and tension (like grasping) about navel (in ½ h.), lasting but a few m. Pressure and tension under l. side of navel, out of which the peculiar obtuse shooting pain developed, only more superficially. Many confused dreams.—19th. No med. Soft stool after eating fruit, but no great urging to stool.—20th. Stool soft, without urging. Tired feeling in r. trochanter major. Obtuse shooting pain on dorsum of l. foot externally. Disagreeable drawing in r. spermatic cord.—21st. Dull drawing shooting in r. deltoid muscle (9 a.m.); normal stool.—22nd and 23rd. Soft stools of dark brown fæces. Single transient rheumatic pains on r. arm, sometimes in one place, sometimes in another.—24th. Normal stool; rheumatic pain in r. shoulder-joint; single flying stitches in r. ear.—20th March. After the proving his habitual constipation disappeared, his stools even when not occurring regularly every day are always soft, often pappy. His urine when examined after the largest dose contained much uric acid and bladder mucus. (BUCHNER, *Hygea*, xxii.)

5. B—, æt. 26, of sanguine temperament, always healthy.—11th May, 2 gr. Afternoon, some confusion of head, drowsiness, slight pressure in pubic region; nothing more.—12th. M., 4 gr. Immediately bitter taste; after some h. considerable pain in abdomen; increased confusion of head and drowsiness with prostration of limbs and pain for ½ h. in the course of the crural nerve.—21st, 6 gr. In a few h. pressive pain over eyes in forehead, most severe in temporal region, lasting almost all d. in equal intensity, only a little better after dinner. Roughness and dryness in throat. Colic pain in abdomen for a short time in afternoon. Stool scanty, increase of urine, at same time the pain in pubic region, which was slight after the first dose, increased considerably. Shooting in shoulder and axilla down to elbow for 10—15 m. The pain in the course of the crural nerve extended to inguinal ring and spermatic cord. Pulse considerably quickened; tendency to perspiration. Sleep quiet, but woke several times.—22nd. 9 gr. Confusion, pressure and weight in head with drowsiness, taking away all desire for work. Tiresome shooting through head. These pains lasted all d. with slight intermission. During the drowsiness the

eyes were dull and as if dust moved to and fro before them, with pressure on orbital region. Humming in ears lasting a few m. Bitter taste and yellow-coated tongue. Afternoon a pappy stool preceded by gurgling in bowels. Severe shooting in spermatic cord and l. pubic region. Respiration quickened, pulse hard. Rheumatic pains in l. shoulder, knee, and r. ankle. Spirits low all d. Sleep frequently broken. —23rd. No med. The above pains in slighter degree; but the confusion of head and drowsiness remained the same.—24th. No med. Traces of the former pains, and drowsiness.—25th, 12 gr. Soon eructation with strong resinous, bitter taste; otherwise no symptoms all forenoon. After 1 p.m., gurgling in bowels for ½ h. followed by several pappy stools. Later, when reading, an attack of vertigo, changing into headache that lasted till n. Lips dry with burning sensation. Pressure in stomach after supper; pulse quickened. Before going to bed tearing transient pains in r. shoulder-joint, knee, and instep., also in l. ankle bones, but less in degree. Great weariness and bruised feeling of limbs. Though sleepy all day he was long of falling asleep, then sleeplessness; every time he went to sleep he was woke up by frightful dreams, and he was long of falling asleep again.—26th, 4 a.m., 15 gr. Soon severe eructation, scraping feeling in œsophagus, and discharge of rancid-smelling flatus; cross humour, prostration, and weariness; pressive frontal pain with confusion of whole head and such drowsiness he could not do any work. A cloud of dust always moving before eyes. Later, flying stitches under ribs and navel, most on l. side. E., drawing pain in right trochanter and left knee and spermatic cord. Great weariness and prostration, hindering sleep for a long time; restless sleep.—27th. No med. Soft stool; weariness in r. thigh, painful drawing in l. foot and spermatic cord. Single stitches in r. ear and great drowsiness.—28th. Some traces of above symptoms. (*Ibid.*)

6. G. JÄHNEL (*Diss. de gummi ammon.*, Lips., 1837, p. 31). After 1—16 gr. of powdered ammon. bitter, disagreeable taste in fauces; after swallowing sensation in throat as in dry cough; later slight pains in abdomen and borborygmus. 16—24 gr. caused acrid and burning feeling in fauces and œsophagus; afterwards coldness and wandering pains in abdomen, followed by copious slimy stool, at same time flow of mucus from nose, with frequent sneezing and mucous expectoration. (He was suffering from cold in the head.) After 26 gr., in a few h. pressive pains all over the forehead and eyes, lasting all d., and preventing all intellectual work. Pulse quick and hard. The next days the stools were sometimes liquid; expectoration slimy or more frequent than normal. The above pains lasted some d. After 30 gr. the former symptoms came on with great severity, the severe headache lasted through the night and prevented sleep. Such loud noise in ears that the hearing was weakened; such dimness of vision that things which could previously be distinctly seen from his room appeared enveloped in a cloud. (Quoted by BUCHNER, l. c.)

7. Mrs. N—, affected with neglected white-swelling of l. knee, had a plaster of gum ammoniac applied to it. The 2nd d. she had itching on the place where the plaster was; on the 3rd d. she could not resist scratching, and on the 4th d. at 11 a.m. the plaster was removed. The skin was covered with vesicles filled with yellow fluid. In the afternoon she had severe fever, followed on the 5th d. by an eruption all over the body of smaller vesicles, with slight swelling of the face. (*Ibid.*)

8.—*a.* A man, æt. 60, with a cough that lasted 8—14 d. without fever or other important symptoms, got for some d. 2 drachms of gum ammoniac. He complained of an hitherto unknown dimness or darkness of vision nearly to blindness. The cough was not so violent that this could be attributed to flow of blood to the head, and nothing was observable in the eyes. On leaving off the medicine this symptom disappeared next d.

b. A young lady, æt. 25, got the same dose of gum ammoniac for an affection that had nothing to do with the eyes. She had precisely the same symptoms, almost complete blindness in the e. She had never experienced anything similar. On leaving off the medicine this symptom was gone next day.

c. This case got gum ammoniac in pills. He complained of dimness of vision for several successive e., and also of stars and fiery points before eyes.

d. Dr. Lodemann related 2 cases where the same symptoms followed the use of ammoniac. (WICHMANN, *Hufeland's Journ.*, x, 3, 62.)

9. There is a singular effect, by no one to my knowledge hitherto indicated, of

the much belauded gums, ammoniacum and galbanum, when taken rather too largely in the d. The sight is affected in a remarkable manner. Towards e., it seems to many either as if molten and glowing brass were poured out before the eyes; or, if a lamp or fire be present, this is marvellously encircled with shining colours. With others a dense cloud, as if of dust scattered through the air, dims the vision. But after a few h. these phenomena disappear entirely of their own accord. (*Burggravii Comm. de aëre, aquis et locis urbis Francofurti*, 1751, p. 110, quoted by Wichmann.)

AMMONIA.

Including ammoniacal gas, NH_3, and its solution in water (Liquor ammoniæ, Ammonium causticum); also the ammonic sesquicarbonate, $2[(NH_4)_2CO_3]CO_2$, Ammonium carbonicum.*

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part II of original, Vol. of translation. Contains 789 symptoms from self and six fellow-observers, obtained from amm. carb.

2. WIBMER, Oct. 20th, 1830, pulse 76, took gr. 1½ of amm. carb.; in 20 m. repeated dose, and in 20 m. more took gr. 3; 30 m. later repeated this dose, found pulse—hitherto unchanged—only 70, but ate dinner with good appetite. Next d., in m., pulse 68, took 3 gr. After 15 m., noticed throbbing headache in l. frontal region, lasting 2 m., pulse 72. In 20 m. took 6 gr. After 30 m. head heavy and full, remaining so for 30 m.; in 20 m. pulse 74. At 10 breakfasted with appetite; at noon a second stool. At 1, pulse 76, took 6 gr., and repeated dose in 15 m. In afternoon transient slight headache. On 3rd d., pulse 71, took 6 gr. After 5 m. noticed slight dulness and heaviness in forehead, lasting 10 m.; and afterwards, for 5 m., slight throbbing in frontal region. In 20 m. took 6 gr. more; 10 m. after head somewhat heavy. In 20 m. more took again 6 gr.; in 10 m. noticed feeling of distension of brain, especially on r. side, and scraping in throat provoking a dry cough. Finally, about 11 a.m., took 12 gr., followed by increased inclination to cough and increased secretion of mucus in trachea. Ate dinner with great appetite, and through day felt quite well. (BUCHNER's *Repertorium*, vol. xxxvii, part 3.)

b. On 6th May, pulse 70, bowels not having been opened, took at 10.30 a.m. 2 drops of sp. salis amm. caust. in ℥j of water. In 5 m. slight confusion of head, rumbling in bowels, call to stool, after occurrence of which confusion went away. At 12.30 took 3 drops in same way, without any but local effect. On 7th, at 11 a.m., took 4 drops. After ½ h., pressive feeling in occiput for 10 m. At 12.15 5 drops, without effect. At 4 10 drops in ℥ijss water. Besides local burning, felt in 7 m. pressure in frontal region, as though head would burst asunder, but without pain, lasting several m., then slight confusion of head with pressure in temples, gone in 10 m. Pulse was quickened 4—5 beats and rather harder; heart's action not increased. On 8th, pulse 75, after stool at 10.30 a.m. took during 5 m. 15 drops in ℥v water. After 20 m., feeling in head as if from middle of brain there was

* "All the ammonium compounds introduced from without, and ammonia itself, have a similar action, varying only in intensity" (NOTHNAGEL and ROSSBACH, *Mat. Med.*, sub voce).

pressure towards both sides, but without pain or confusion of consciousness. This feeling lasted only a few m. At 4.30 took 20 drops in ℥vj of water without any effect; and next d. 25 drops with only slight pressure in forehead. (*Ibid.*)

c. Wibmer also experimented with ammonium aceticum, benzoicum, succinicum and nitricum, but the results were almost entirely negative. (*Ibid.*) (For his proving of amm. muriaticum, see next article.)

3.—*a.* Blaufuss, Jan. 13th, at 7 a.m., took gr. viij of amm. carb. At 8 liquid stool. In forenoon, vertigo and indistinct vision; headache in vertex; rumbling in stomach; aching in gastric region, extending in a sort of vibrating motion towards l. nipple; great palpitation, pulse about half as strong again as usual; pain, especially in l. side of chest, as after sitting long in bent position; inclination to vomit; rigor in walking across street. In afternoon, great drowsiness, and lassitude in limbs as after a fever; otherwise as in forenoon. On 14th same symptoms, only in slighter degree.

b. On 15th, at 8.30 a.m., took 20 gr. There followed rigor, alternating with heat, especially flying heat in face; inclination to vomit; drowsiness; bruised feeling in limbs; an unusual sadness; no inclination to go out; headache as before, with sensation as after having been drunk. On 16th, symptoms the same. On 17th, slighter, but also great desire to pass water. On 18th, pain in chest, drowsiness, copious urination. On 19th, as on 18th; and on 20th, shooting beside l. nipple on breathing, especially troublesome when seated. (Martin's provings, *Hom. Vierteljahrschrift*, x, 1.)

4.—*a.* Fries took, Jan. 9th, gr. j; 10th, gr. ij; 11th, gr. v. On 10th, 11th, and 12th very tired in m. On 11th headache and vertigo 1 h. after taking powder. On 12th, aching swelling of l. inguinal glands, which went off towards noon, and was replaced by headache and feeling of illness, which lasted till e. and recurred slightly next d.

b. On 18th took gr. x. In m. felt ill; in e., and on m. of 19th, great lassitude; also, on following days, heaviness of limbs. (*Ibid.*)

5.—*a.* Gunther, on Jan. 8th at 6 a.m., took gr. j. About 8, very great twitching in external canthus of r. eye, like "live blood," visible in mirror: eye was for 2 h. as if covered by a veil. On 9th, at 6 a.m., gr. ij. Great perspiration, especially in following n.; sleep very unquiet; great flow of urine. On 10th, at 7 a.m., gr. v. Severe headache, flickering before eyes; very profuse perspiration, of fœtid odour, continuing till noon; repeated call to pass water, urine very muddy, of peculiar smell, and with copious sediment. On 12th and 13th, slight perspiration, not so fœtid; urine pretty clear; itching in all limbs. On 15th took gr. x without effect; but on 18th there appeared on r. thigh a boil the size of a child's fist, very painful, and not relieved by poulticing. On 20th it was cut open, and much pus and blood discharged. On 21st a pimple on l. cheek near ear, not painful unless pressed upon; itching on back, arms, and shins; rigor, followed by stuffy cold, with confusion in head, lasting a week. (*Ibid.*)

6. Hilpert, Jan. 8th, took in m. gr. j. It caused feeling of coolness on tongue; in ½ h. aching in stomach and feeling of warmth in scrobiculus cordis. In e. slight headache. On 9th, took gr. iij. At

9 o'clock feeling of warmth all over body. On 10th, took gr. x without effect. On 16th, gr. x. Soon after taking it, dryness in throat; in afternoon, violent headache. On 19th, took gr. x without effect. (*Ibid.*)

7. HORN, Jan. 15th, at 6 a.m., took gr. x. Abdomen became painfully distended; had profuse perspiration, remained in bed till it went off; burning pains in sinciput. Felt very sick all d., and got no relief by discharge of flatus or by eructations. Pulse 76. On 16th, in afternoon, after drinking two cups of weak coffee, had congestion to head; towards e. rush of blood greater; pulse 112; had vertigo and cold sweat, such as usually accompanies a fainting fit; no appetite; inability to stand up well. Took gr. iij of naphtha aceti, which caused eructations with relief. Very hypochondriacal, and had bitter taste at root of tongue. During n. many confused dreams about things that had happened many years ago. On 17th, fever was gone, but H— was very ill-humoured and miserable; after taking a glass of punch felt better. Abdomen, though still somewhat distended, was less so. On 18th and following days the ill-humour went off. He was very hungry, but had little appetite; and the feeling of nausea, which was combined with flatulent disturbance, had not left him.* (*Ibid.*)

8. KRUMBHOLZ, Nov. 8th. In e. two doses of gr. v each. Quiet sleep. 9th.—Seven powders (4 of 5 gr., 3 of 10 gr.) at 2 h. intervals, at 7, 9, 11 a.m., 2 and 4 p.m. No particular effect noticed, save somewhat copious urination. 10th.—Four powders of gr. x, 3 a.m., 1 p.m. Still no particular action; all d. lively, excited; sleep somewhat disturbed. 11th.—Same disposition. In afternoon occurred what had been already felt on previous d., scraping sore sensation in mouth, especially severe in inside of upper gums; one spot softened. In e. much flatus. 12th.—Same sensation in mouth, only slighter. Itching on outer surface of both thighs, on corresponding spot, began in n. and only went off p.m. In e., again flatus. 13th.—Sensation in mouth almost gone, and other symptoms do not recur. (*Ibid.*)

9. KREUTZMAN, Jan. 9th. On taking gr. ij coldness of tongue. 12th.—After gr. iij same sensation, only stronger. Feeling of tightness in head, pulse somewhat quickened. 13th.—After gr. v same feeling still stronger, salt taste: all gone in 1 h. In e. took gr. x. On taking it nausea; coldness followed by warm feeling on tongue. In ½ h. lightness of head, feeling of coldness in course of longitudinal sinus. In a short time lassitude, much flatus. The following n. quiet sleep. Everything now normal, only much thirst for beer, which lasted a week. (*Ibid.*)

10.—*a*. MARTIN, Jan. 12th. In m., fasting, took gr. v. In ½ h. (after local effects) headache, nausea, general shivering. In another ½ h. warmth, especially in head and face, burning in lobe of l. ear and around nostrils. At n. dreams, and uncommonly profuse sweat. In e. on l. natis a painful boil, great lassitude, sensitiveness to open air.

* This attack of the 16th cannot positively be ascribed to the drug; but as the nausea and abdominal distension of the first day persisted, the prover must be considered as still under its influence, and his subsequent symptoms must be provisionally retained.—EDS.

13th.—In m., fasting, gr. j. In ¼ h. confusion of head; pain in abdomen as if diarrhœa was coming on; this going off, was replaced by considerable ill-humour and dissatisfied feeling; collection of saliva in m.; smell as of profuse sour perspiration. In 1 h. rigor, with weak feeling; then heat in face and drawing in teeth. The whole m. strikingly gloomy humour; lassitude; pale, wretched appearance. In e. exhaustion, dryness of nose and lips, coryza. N. tranquil. 14th.—In m. early a stool, and—unwontedly—another during d. Boil not so painful; more cheerful. In e., suddenly violent pulsation about r. hip, soon going off. During subsequent d., uncommonly violent coryza, which lasts with unusual obstinacy. 19th.—A pustule appears on r. commissure of mouth, with much burning pain. Before this several had appeared on l. cheek, and on thighs. Coryza did not go away till 20th.

b. Nov. 5th, 6 a.m., took gr. v dissolved in water. In ¼ h. uncommonly early call to stool, and loose evacuation; then headache and much rigor. After breakfast (1 h.) belly-ache. At 11 a.m., 5 gr. more. About noon uncommon burning in hands and feet. In afternoon and towards e. aching and shooting in thyroid gland, which had been enlarged but painless for years. At 6 p.m. again 5 gr. Soon after great eructation, pressure and heat in sinciput; increased secretion of mucus in mouth and scraping feeling. Afterwards, after taking some milk (10 p.m.), some eructation. Great wakefulness until 12.30, with constant straining and pressure on belly and discharge of flatus. Burning on some chaps on fingers, where, next m., some unusual collections of pus appear beneath the skin. 6th.—5 gr. In 1 h. eructations, frontal headache, chilliness. At noon again 5 gr., and increased number of pimples on face. In afternoon much rumbling in bowels and discharge of flatus At 6 p.m. 5 gr. more. Next m. great lassitude in all limbs, as if sleep had been insufficient; itching pimples on podex. 7th.—Gums somewhat swollen, and more sensitive than usual: pimples on podex painful on lying down at n. 8th.—At 10 a.m. 5 gr. After 2 h. painful erosion on middle of tongue. Great secretion of mucus in mouth and nose, in afternoon and e. 9th.—Much itching on hands and rest of body. At 10 a.m. a powder (presumably of 5 gr.—Eds.) and again at noon. Burning in fauces and œsophagus; disposition to eructate. At 5 p.m. another dose. Frequent call to micturate, as had indeed been the case for several d. previously. At 7 p.m. another powder. Very sensitive reddened gums. 10th.—Gums, especially of lower teeth, swollen and very sensitive; a yellow painful vesicle on mucous membrane between lip and l. lower canine. At 11 a.m. another dose. Increased flow of urine and loose evacuation in afternoon. In e. transient pinching in r. ear, as has happened several times before these last d. Uncommon lassitude. 11th.—On rising, ball of r. foot swollen and tender as if from frost (there was none); unusually severe coryza. In e. tender red swelling of r. toes, like chilblains. 12th.—Coryza and tender swelling of ball of foot are still present, and continue throughout 13th and 14th. 15th.—Many itching pimples on thighs and hands. In e. swelled ball of l. foot burned and was painful. Uncommon sensitive-

ness of both feet to wet and cold, which for several afternoons past has caused pain in bowels, flatus and chilliness. Great increase of urine, and frequent calls to pass it, especially in afternoon. On 16th and 17th, in addition, l. ala nasi was internally swollen and tender. With abdominal troubles was great depression of spirits, which did not go off till about midnight. On 18th and 19th the medicinal disease seems to have attained its height: ball of l. foot was very painful in e. On 20th, and still more on 21st, spirits got better, and a marked feeling of improvement ensued: pains in ball of foot gradually subsided. (*Ibid.*)

11. MAYER. Nov. 5th. At 6 a.m., after taking 5 gr., a slight headache, which did not last long. Felt no other effect, though during d. he took 6 doses of 5 gr. each. On 7th, in e., took 10 gr., after which he slept quietly. On 8th, from 7 a.m. till 4 p.m. took 5 gr. every 2 h. Till e. felt scarcely any action; but about 7 p.m. a sort of anxiety possessed him, lasting about 1 h., and then going off again. Slept quietly at n. 9th.—In m. slight headache, with nausea, going off on smoking; nausea alone recurred at 3 p.m., while lying down, going off on rising. In e. same anxiety recurred. Lay in bed from 11 to 1 unable to sleep—an unprecedented occurrence. 10th.—Felt uninterrupted aching in chest, most on l. side; also itching or rather burning in l. sole and calf, particularly in former, where it was most persistent. At n. cough with stuffed cold, keeping him awake till 1: next m. quite right, save occasional stomach-ache. Pulse regular, save that during the anxietas it quickened, and there was rush of blood to head. On 11th, itching on glans penis, lasting 8 d. (*Ibid.*)

12. REICHMANN. Jan. 15th. In afternoon, took gr. v. Soon afterwards, and for some time thereafter, considerable thirst, pains in chest and oppression of breathing. At n. terrifying dreams, low spirits, and sometimes considerable excitement. Soon afterwards, eruption of pimples on legs and inflammation. (*Ibid.*)

13. RUNGE. On Nov. 5th took, at intervals, 6 doses of 5 gr. each. The 6th and 7th passed without effect. On 8th, at 8 p.m., 10 gr. were taken, and repeated at 10.30. Tongue and whole inside of mouth were reddened, especially a spot on palate which had been excoriated by a hard crust, and also parts below tongue; on lower lip two small hard swellings. On 9th, took at intervals seven doses of gr. x each. Redness of mouth, especially towards e. 10th.—At 7 a.m. evacuation surrounded by watery mucus; same about 1; flatus very fœtid. In course of d. redness of mouth diminished, especially about inner surface of gums. Lip swellings almost gone. Towards e., itching on arms and still more on feet. 14th.—Tenderness of mouth goes off more and more, and had quite ceased by 16th. (*Ibid.*)

14. VULPIUS. Jan. 8th, took gr. j. Immediately an irritation causing cough, of short duration only. On 12th, gr. vj produced nothing besides this. On 13th, took gr. x. Soon after, slight rigor over whole body, confusion and weight of head: during d., a good deal of chilliness. (*Ibid.*)

15. L. G—. Health sound, pulse 72. At 7 a.m. took 5 gr. of 1_x trit. of amm. carb. in water. Soon accumulation of mucus in larynx,

followed by slight roughness of voice. 7.10. Throat feels full and obstructed; increased mucus in fauces; ringing in r. ear; eructation. 7.30. Occasional sneezing; perspiration on forehead. 7.45. R. submaxillary gland tender to touch. 8. No appetite for breakfast; after eating distension of stomach, followed by urging to stool before usual h.; felt very languid for ½ h. after stool; slight irritative cough at intervals. 9. On going out of doors, chilly; fresh air causes sneezing and slight sorethroat; backache in lumbar region while walking. 9.30. Chilly again, with perspiration; pulse 84; griping in bowels, with flatus. 10.15. Usual stool. 10.40. Ache in lumbar region; muscles of legs feel sore and bruised; feverish heats and thirst; felt sleepy and tired; slept ½ h.; woke with headache and coryza; pulse 90. 12.30. After a good meal all symptoms relieved. (Dr. WOODWARD, *Med. Era*, Jan., 1885.)

II. *Poisonings.*—1. A young man slept in a room next to the pharmacy in which was a large bottle containing about 50 lbs. of ammonia (alcali volatil). This burst in the n. He woke with feeling of constriction of throat and great difficulty in breathing. He rushed into the pharmacy and was completely suffocated, and would have died had not a nurse come and extricated him from his dangerous position. When seen by the reporter, he was still in the corridor leading to the pharmacy. He was immediately taken into open air. His gestures betrayed the greatest anxiety; his face, the features of which were much discomposed, was covered with red spots, more marked the nearer they were to the natural openings; the sense of nostrils and lips was destroyed; a quantity of bloody foam exuded from mouth and nose; the tongue, bright red, seemed deprived of its epithelium, some parts of it were covered with a layer of mucus which might have been mistaken for a false membrane; all the buccal cavity presented the same appearance; the patient could hardly speak, his voice was so feeble; he complained of biting pain in throat which soon extended to chest; there was extreme difficulty of breathing and threatening suffocation; auscultation revealed a tumultuous râle; thirst extreme, but swallowing almost impossible; the attempt he made to swallow brought on a tiresome cough, which brought up, at rare intervals, mucus; skin hot and dry; pulse weak, irregular, and quick; no convulsive movements; eyes red and sparkling; forehead burning to the touch, its blood-vessels distended. He was bled freely, which stopped the blood accompanying the expectoration. He had injections of vinegar and water, which were painful; at the end of 2 h. auscultation showed signs of improvement in the respiration; he seemed to suffer less. His complaints were all about his throat; swallowing soon became impossible. Leeches were applied and astringent gargles given, also emulsions, frictions, purgatives, enemata, and baths. At the end of 48 h. he was out of danger. For some days afterwards he presented the signs of acute bronchitis, and had aphonia for 5 or 6 d. This went off and he is quite well. (*Journ. de Chimie*, Aug., 1840.)

2. M—, æt. 44, compositor, on 8th September swallowed with suicidal intent more than 100 grammes (ʒiij) of liquid ammon. He immediately experienced great anguish, a sense of suffocation and con-

striction of throat, horrible tearing pain in stomach, and vomiting. Soon became unconscious for a short time, and was brought to the hospital, prostrated and cold. Treatment, warm applications to body and drinks acidulated with acetic acid. Next d. calm, but complained of mouth, throat, and stomach, several small white spots on inferior aspect of tongue. All throat bright red. Velum palati, uvula, and pillars of fauces slightly swollen. Upper part of larynx very painful; deglutition extremely painful, voice feeble. Epigastrium excessively painful to pressure, rest of abdomen tender, not painful. All he drinks is ejected by vomiting, which is accompanied by liquid blood in considerable quantity. During d. vomiting continues, and he has copious liquid stools of a deep red colour, and extremely fetid, evidently chiefly composed of blood. No sleep.—10th. More calm, deglutition still painful, sensitiveness of epigastrium.—11th. Sensitiveness of epigastrium increased, abdomen distended, slightly tympanitic. Stools of same character, very copious. Tongue still shows white spots. No redness or prominence of papillæ.—12th. Less pain in stomach, epigastrium less tender. Chief sufferings in fauces and œsophagus. Great pain in swallowing. Stools as yesterday.—13th. Swallowing still difficult. Vomits all he swallows. Stools less copious, but still liquid and red. Emaciated and prostrated.—14th. Injection of conjunctiva, sclerotic yellow; swallowing less difficult.—15th. Stools still liquid, but no longer bloody.—16th. On both forearms smooth red patches, not very sensitive to touch. Anterior veins of a dark blue colour, not prominent.—17th. The red patches much increased in size, extend all over forearm, back and front, and even up the inside of upper arm. Conjunctiva of l. eye swollen, yellowish semi-transparent chemosis. Swallowing still difficult. Tongue red, papillæ prominent. —18th. Redness of arms extended up inside of upper arm, doughy feeling of subcutaneous tissue. The pain of the red eruption is so great, he cannot move his arms the least bit. The patches are pale red with a yellowish border. Veins of arms more apparent and livid. The chemosis of l. eye prevents closure of lids. Lids themselves swollen. Skin dry and hot, pulse 120, very small. Respiration frequent and short. Diarrhœa continues. Tongue pale, not furred. Great prostration and emaciation. Excitement and tendency to delirium, voice weak and hoarse. Died in the e.—P.M., 36 h. after death. Greenish discoloration of abdominal walls; no rigor mortis. Redness gone from arms, but where it has been epidermis is detached, cellular tissue beneath infiltrated with serum. Axillary glands slightly swollen, their substance bright red, only moist and rather soft. Contents of skull normal. Both pleuræ contained a large quantity of red serum. Some adhesions at apices of lungs. Both lungs of a dark red colour, mottled with small black spots. A quantity of frothy serum escaped when they were cut into; the congestion is more towards the apex than the base. Bronchial m.m. reddened. The aryteno-epiglottic folds are swollen, red. Epiglottis very red on its upper surface, not on its lower, its edges show small excoriated scars. R. side of heart filled with soft blackish spots. All the inside of r. ventricle and of l. auricle dark red. In aorta a fibrinous clot flattened like a riband, extending

into brachio-cephalic branch of l. carotid. Lining membrane of aorta dark red. Pharynx bright red and swollen. All the œsophagus appears deprived of epithelium, its m.m. dirty grey-coloured, studded with deep ulcers and apparently destroyed in a great part of its extent. Large cul-de-sac of stomach at one side and in front of cardiac region shews a round ulcer 3 c.m. diameter, the centre occupied by a blackish slough; the rest of m.m. not altered, of a dark green colour where in contact with liver. Valvulæ conniventes of duodenum and jejunum thickened, m.m. dark coloured. Mesenteric glands considerably swollen, grey coloured, soft, the upper ones more altered than the lower ones. Liver yellow, like boot leather, extremely friable, quite bloodless. The scalpel rendered somewhat greasy by incision. Spleen dark red, softened. R. kidney enlarged, its capsule thickened; its tissue, especially towards periphery, unusually soft, friable like the spleen, all the softened tissue of a greyish-yellow colour. Tubules under microscope empty or containing altered cells, or those replaced by a fine granular substance of dark yellow colour with oil globules. The substance of pyramids shows many empty tubules, others filled with the fine granular and fatty substance. All the tubules of cortical substance seem filled with the granular fatty substance. No blood globules. Malpighian glomerules scarcely distinguishable. In the calices of the pelvis there is a semifluid ochre-yellow layer adhering to the unaltered m.m. This under microscope seems to be the same granular fatty substance found in the tubules. L. kidney large, discoloured, softened on its surface, not less so than r. kidney. (POTAIN, *Journ. de Chimie méd.*, viii, 311.)

3. A woman, æt. 24, swallowed about half a wineglassful of mixture containing a large quantity of strong solution of ammonia put into it by mistake. She immediately fell backwards in a state of insensibility, and appeared as if choked. When seen about 6 h. later she complained of severe burning pain down throat and in epigastrium, which was tender on pressure. There was great debility, the voice was reduced to a whisper, and the countenance expressed anxiety. There was also great difficulty in deglutition, the pupils were widely dilated, breathing difficult, tongue coated with white fur, painful, and tender; two or three patches of its mucous membrane peeled off, and there were convulsive twitches of r. arm. Patient did not entirely recover till after lapse of 10 d.; on 5th d. there were still great pain and tenderness in epigastrium and l. hypochondrium. (*Lancet*, April 4th, 1856.)

4. A man, in a fit of passion, swallowed about ʒv of a solution of the carbonate. In 10 m. he was seized with stupor and insensibility; but, upon the application of stimulant remedies, he recovered. He suffered for some time afterwards from severe irritation about fauces and œsophagus. (TAYLOR, *Poisons*, sub voce.)

5. I had lately under my care a gentleman of fortune and family, who so habituated himself to the use of volatile salts, in vast quantities, that at length he could eat them in a very astonishing manner, as other people eat sugar and caraway seeds. The consequence was that he brought on a hectic fever; vast hæmorrhages from intestines, nose, and gums; every one of his teeth dropped out, and he could eat nothing

solid; he wasted vastly in his flesh, and his muscles became as soft and flabby as those of a new-born infant, and he broke out all over his body in pustules. His urine was always excessively high coloured, turbid, and very fœtid. He was at last persuaded to leave off this pernicious custom; but he had so effectually ruined his constitution, that, though he rubbed on in a miserable manner for several months, he died, and in the highest degree of marasmus. (HUXHAM, *Essay on Fever*, quoted by PEREIRA.)

III. *Experiments on animals.*—1. *a.* The elimination of the ammonia compounds and their behaviour while in the body have frequently been the subject of elaborate investigations. The most recent researches positively refute the statement that elimination takes place by the lungs, even when ligation or removal of both kidneys has been practised. Lange has sought in vain for free ammonia in the blood of animals into which large quantities of ammonia compounds had been injected during life by the jugular vein. Lohrer and Knieriem conclude from their experiments that the whole of the ammonia introduced leaves the system in the urine, with or without transformation into urea.

b. The local effects of ammonia on organs containing nerves are, under all circumstances, coupled with the phenomena of intense irritation of the sensitive nerves, which manifests itself not only by violent pains, but also (in the air-passages) by energetic reflex action. In other respects the local phenomena are similar in character to the effects produced by other inflammatory irritants.

c. Of the phenomena which ensue after the absorption of poisonous quantities of ammonium compounds the most striking are the disturbances of respiration and of the voluntary movements. The former consists in an enormous increase in the frequency of respiration, succeeding a short pause in the breathing that occurs immediately after the administration of the poison. We ascribe it to a central irritation of the respiratory tract in the medulla oblongata, and it obtains even in animals whose vagi were previously severed.

d. The tetanic convulsions provoked by the ammonium compounds proceed from the spinal cord. This is evident from the fact that they occur also in animals whose cervical marrow has been severed between atlas and axis, and which are kept alive by artificial respiration.

e. The action which all the ammonium compounds exert on the circulation consists in an enormous increase in the blood-pressure. (BOEHM, *Ziemssen's Cyclopædia*, sub voce.)

2.—*a.* The effect on the spinal cord is very analogous to the action of strychnia; with this difference, that after the first tetanoid convulsions, there is not upon every new irritation of the sensitive nerves a fresh tetanus, but only a short reflex contraction.

b. When both vagi are severed before the poison is injected, the primary interruption of the breathing does not occur.

c. When injected into a vein or hypodermically ammonia produces in frogs and rabbits: 1st. A strongly excitant effect on the inhibitory centre of the heart in the brain, resulting in slowing of the cardiac movements or a stoppage of the heart in diastole. 2nd. The same influence on the spinal vaso-motor centres, thus narrowing the calibre

of all the peripheral arteries and increasing the blood-pressure, which otherwise would be lowered from the inhibition of the heart. In dogs and cats there is with the increased blood-pressure an acceleration of the heart.

d. The secretion of many glands, especially of those of the bronchial mucous membrane, and according to some of the sweat-glands, is increased by the action of ammonia and its salts. (NOTHNAGEL and ROSSBACH, *Arzneimittellehre*, sub voce.)

3. MITSCHERLICH injected ʒss of amm. carb. in ℥j of water into a rabbit's stomach. At first the animal became restless, but afterwards so feeble as to be unable to stand; spasmodic movements and tetanus followed, with rapid beating of heart and difficulty of breathing. In 25 m. animal died. Stomach, on dissection, showed no alteration, perhaps in consequence of its containing food, but there was vascular injection of the upper portion of the small intestine, and the epithelium of this part was dissolved. The blood was liquid, and coagulated very slowly, forming a very small clot. When the salt was introduced into the cellular tissue of the abdomen, tetanic symptoms again occurred, and animal died in 42 m. Small intestine externally was very red, and within was filled with a reddish mucus, containing very few cylindrical cells, many cell-nuclei and globules, resembling the blood-globules in form and size, but so thin and delicate as readily to be torn. (STILLÉ, *op. cit.*, I, 784.)

AMMONIUM MURIATICUM.

Sal ammoniac, Ammonic chloride, NH_4Cl.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part II of original, Vol. of translation. Contains 397 symptoms from self and three fellow-observers.

2.—*a.* Dr. GUMPERT commenced* by administering ʒss or ʒj in 24 h., increasing doses by ʒj every 3 or 4 d., until ʒiv—ʒvj were taken daily. When about half a pound had been used in the course of 4 weeks, the following complex of symptoms would appear:—There was a state of things exactly resembling a status pituitosus, attended with the most invincible repugnance to the remedy, so that even the thought of it would cause nausea. The eyes became dull, and presented a peculiar glassy or watery shine; lassitude, sluggishness and prostration overpowered whole body; tongue became coated white; patient experienced a constant shivering, horripilation between skin and flesh; he hawked constantly and cleared his throat because there was an incessant tickling there, although he did not get up much mucus; there was sense of emptiness in stomach, but he could not bring himself to take food. Perspiration was generally increased; sweat broke out

* Gumpert's subjects were seven patients, one with adiposis, the second with some urinary catarrh, the other five with maladies unmentioned. As the symptoms were uniform in all, we have felt justified in inserting them as pathogenetic from the drug.—EDS.

from slightest movement. Much urine was excreted, of a strong ammoniacal or even mouldy odour, though generally quite clear. Glassy and viscid mucus* was occasionally evacuated by stool, but diarrhœa occurred only rarely.

b. This state of things did not last long before a formal attack of fever would prostrate patient upon his bed. The paroxysm commenced with chill and heat, and ended with profuse perspiration. It resembled that of an ordinary intermittent, and was followed by relief from the premonitory symptoms recorded above, and from some of those of the disease for which it was given. In the course of 18 months G. has observed five cases of the kind, all of which followed the seven-day type quite accurately : the paroxysms recurred regularly as long as the organism was sufficiently saturated with the salt; ceased or became slighter as the saturation decreased, and could be reproduced at pleasure by resuming remedy. In one case the *febris septimana* set in after sal ammoniac had been taken 6 weeks, and recurred every Thursday for 4 weeks : 5th paroxysm was slight, and the 6th omitted, but a 7th occurred on fresh dosing with the drug. [This was the patient with adiposis : he was much benefited by the treatment.] (*Med. Ztg. vom Verein f. Heilk.* in Preussen, vii, 179.)

3. Dr. RABUTEAU took 2½ grm. twice daily for 5 d. For 5 d. previously urine showed average of 1027 grm. and urea of 21·40, for 5 d. subsequently average was 1078 and 21·62 respectively ; while during medication it was 1343 for urine and 24·41 for urea.† The secretion also, ordinarily clear, was on these days turbid with urates on cooling. He did not take his temperature, but it seemed to him elevated,—his hands being nearly always hot,—and his pulse averaged 66 instead of 61·8 and 61·2 (the figures before and after medication). There was no diaphoresis, neither did digestive or nervous disturbance occur. (*L'Union Méd.*, 1871, ii, 330.)

4. WIBMER, on Aug. 18th, took at 12.30 gr. v in water without effect. On 19th, pulse 68, took gr. x at 7 and again at 8 a.m. Between 9 and 10 increased call to urinate, warmth in stomach, mouth and fauces very moist, loose cough. At noon a stool, softer than usual. At 12.30, pulse 73, took gr. xv. After ½ h. warmth and discomfort in stomach, some headache in temples and forehead for 10—15 m. only. At 2 ate with appetite. At 5.45 gr. xx. In ¼ h. again warmth and weight in stomach, headache in forehead, thinking power unaffected. In 1 h. increased secretion of urine. Ate supper with appetite. On 20th quite well save for pressure in stomach for a few m. and slight nausea. (*Wirkung der Arzn. u. G.*, sub voce.)

5.—*a.* Increase in excretion of urine seems to be a constant effect of sal ammoniac administered internally. Böcker always found in experiments on himself that he excreted from 250—600 grm. more under these circumstances.

* "Of these effects, the increased secretion of mucus has been confirmed by all other observers; it seems therefore to be well founded" (NOTHNAGEL and ROSSBACH).

† "According to the recent researches of Knieriem (*Zeitsch. f. Biologie*, 1875), the major part of the ammonia taken into the system is transformed into urea, in which form it appears in the urine" (BOEHM, in Ziemssen's *Cyclopædia*, xvii, 357).

b. According to Böcker the absolute quantity of the expired carbonic is considerably increased at the outset, while the percentage in the expired air is slightly diminished. After long-continued use both absolue and relative amounts are very much lessened. (NOTHNAGEL and ROSSBACH, *op. cit.*)

6.—*a.* Sundelin says that in large doses it purges like other salts, but in small ones rather constipates.

b. Kraus says that a slight miliary eruption and very painful aphthæ have been produced by large doses of it. (PEREIRA, *op. cit.*)

7. RECHNITZ gave sal ammoniac to a patient suffering from some injury and from a perinæal fistula, commencing with ʒss and going to ℥j *per diem.* Soon there occurred such disgust at the remedy that he could not even look at the drawer where it was kept without vomiting. He had prostration and weakness of limbs; violent boring pains in lower extremities; drawing in jaws; pulse quick, small, soft; tongue white-furred; thirst great; neither stool nor urine increased; frequent vomiting of green fluid. No intermitting fever noticed. (*Med. Jahr. der k. k. Œst. St.*, xxxi, 224.)

8. FISCHER gave to a man with enlarged prostate ℈ij of amm. mur. every 2 h. After 3 weeks of this treatment patient reported that he had a severe miliary fever (*Friesel*). "This *Friesel*," Rechnitz writes, "is well known to me: it never fails to appear during prolonged use of large doses of sal ammoniac." (*Casper's Wochenschrift*, 1833, p. 820.)

9. 3rd March.—Of ʒiij amm. m. in ℥vij water, took at 8, 9, 10, 11, 12 a.m., 2.35, 3.10, 3.40, 2 tablespoonfuls, at 4.5 p.m. 1 tablespoonful; of ½ oz. in 8 oz. water, at 6 p.m. 1 tablespoonful, 11.10 p.m., 2 tablespoonfuls. No symptoms.—4th. Of last solution, at 6.45, 7.30, 8.5, 9.10, 10, 11, 12 a.m. 2 tablespoonfuls.—5th. ½ oz. amm. m. in 6 oz. of water. At 8, 10, 11, 12 a.m., 3.40, 4 p.m., 2 tablespoonfuls. ½ oz. amm. m. in 8 oz. of water. At 5, 1 tablespoonful; at 5.30, 6.35, 11 p.m. 2 tablespoonfuls. At 6 a.m. some pinching in belly below navel. On rising from bed pappy taste. At 10.30 a m., expectoration of mucus from throat and slight nausea. Afternoon and e. easy expectoration of mucus.—6th. At 7.45, 9.40, 10.40, 11.25 a.m., 12 noon, 4, 7.35 p.m., 2 tablespoonfuls, 11.15 p.m., 3 tablespoonfuls. Diminished appetite. At 6 p.m. pinching in abdomen below navel, soon passing off. 8 p.m., feeling of roughness in chest, inclination to breathe deeply, and cough with scanty mucous expectoration. Sleep restless, twice awoke by noise but soon fell asleep. On rising in m. a pappy taste, furred tongue, and little appetite.—7th. At 7.30, 9, 10.5, 11, 11.35 a.m., 4.30, 10.30 p.m., 2 tablespoonfuls. During d. coughing and hawking of mucus. On rising in m., tongue more furred, little appetite for breakfast. 10 a.m. Tongue clean, occasional expectoration of mucus. At 11 a.m. repeated expectoration of mucus. 2.45 p.m. Hard stool covered with mucus. Afternoon, coughed and hawked mucus. Feeling of fulness in abdomen.—8th. On waking, l. nostril stopped up with mucus, removed by sneezing. On blowing nose some drops of brownish blood mixed with mucus.—8th. ½ oz. amm. m. in 6 oz. water. At 8 a.m., 3 tablespoonfuls, 9,

10.10 a.m. 2 tablespoonfuls, 11 a.m. 3 tablespoonfuls, 12 noon 2 tablespoonfuls, 3.30 p.m. 2 tablespoonfuls, 9 p.m. 2 tablespoonfuls. On rising in m. tongue slightly furred, appetite diminished. M., felt weak and expectorated mucus frequently, also afternoon and e. At 12.30 p.m. copious normal stool, fæces enveloped in mucus, but compact. Afternoon, frequent discomfort in belly, especially below r. and l. of navel. All afternoon from 3.30 p.m. onwards, uncomfortable fulness in abdomen lasting till bedtime. E., very tired but not sleepy. At 10.45 felt as if the bowels twisted about. At 9 p.m., on taking the last dose, extreme loathing.—9th. ½ oz. amm. m. in 8 oz. water. At 8.16, 9.20, 10.10, 11, 11.50 a.m., 2.30, 3.55, 4.45 p.m. 2 tablespoonfuls, 5.45 p.m., 3 tablespoonfuls. Diminished appetite and disgust at medicine. Stool first firm, then soft. Coughed up some mucus.—10th. ʒiij amm. mur. in 5 oz. water. At 8.10, 10 a.m., 3.30, 6.30, 11.45 p.m. 2 tablespoonfuls. On rising in m., tongue cleaner than usual. 9.45 a.m. copious soft stool, expectorated a little mucus.—11th. ½ oz. amm. m. in 5 oz. of water. 8.20, 10, 10.35, 11.15, 11.45 a.m., 3.20 p.m 2 tablespoonfuls, 4.10 p.m. 3 tablespoonfuls. On washing face m. some bleeding from nose. Sneezed before breakfast. After rising, till 9 a.m., expectorated thick phlegm, also a little during d. No stool. During the proving the salts in urine were slightly diminished. The nitrogenous constituents of the urine were increased except the urates, which were diminished. (BOECKER, *Beiträge zur Heilk.*, ii, 150.)

II. *Poisoning.*—1. *a.* H. W—, a man, æt. 25, convalescent from an attack of acute mania, was taken suddenly ill, at 11 p.m., on Jan. 22nd, 1868, with sickness, pain in the bowels, instantaneous delirium, fancying enemies were hiding under his bed and accosting him; that a sword was hanging over his head; and that flames were surrounding him. He then had a convulsive paroxysm, which lasted a few minutes, leaving the hands firmly flexed upon the forearms. The pupils were normal, pulse feeble, 100; skin cold and moist, the extremities of a bluish tinge; eyes tremulous; with sobbing respiration as of hysteria. After general stimulation, mental tranquillity returned, he was free from pain and began to talk, saying that he had taken poison in large quantity in the afternoon. This was subsequently proved to be chloride of ammonium, but how much had been taken could not be ascertained. Patient stated that he felt no inconvenience on first taking it, but in the evening he felt giddy, as if half drunk, staggered, had pain in his stomach, singing in his ears and sensation of dazzling before his eyes.

b. Patient recovered during the n., and at 6 a.m. insisted on getting up, but had so much shivering, thirst, faintness, and giddiness, that he was obliged to return to bed and have some warm drink. At 7 a.m. an attendant, who had left the ward, returned and found the man, as he thought, dead. Breathing had ceased, the jaw dropped, the face was of an ashy paleness, the eyes were open and dull, looked filmy, the pupils dilated and insensible to light, no response was made to pricking, pinching, or shaking; the muscles were relaxed and flaccid, the extremities cold, trunk cool; a faint beat of the pulse was felt at the wrist,

Prompt general stimulation with electricity was resorted to for several m., when there occurred a short, broken, gasping respiration, with a tetanic action of the muscles. Then there was agitation with stiffness and rigidity of the muscles of the thorax and arms, which increased and spread to complete opisthotonos. This lasted 1 m., was followed by relaxation, and a return of the spasm. In ½ h. a feeble irregular respiration was fully established, sensibility gradually returned, and patient began to cry out, at first faintly and afterwards stronger. In 15 m. more, consciousness partially returned and patient began to look wildly about him, and to resist the treatment. The mental powers returned rapidly, respiration became deeper, the heart's action stronger, and the surface of the body warmer. In an h. from the commencement of the treatment patient had delusions that he had committed murder, that he was suffering the pains of purgatory, that his bowels were on fire, and he cried out lustily. On attempting to rise from bed the muscular system was still powerless; he could not pass water, and three pints of pale urine were drawn off. Throughout the d. there was considerable drowsiness, with paroxysms of delirious excitement, much pain in the bowels, and a copious evacuation of dark bilious matter of thin consistence (a purgative had been given). Towards e. the pulse became full, bounding, 120, the head hot, conjunctiva engorged, pupils somewhat contracted, temp. 97·4°. With this reaction the mind cleared up and patient recovered in the course of the next d. (CRICHTON BROWNE, *Lancet*, 1868, I, 720.)

III. *Experiments on animals.*—1.—*a.* The study of the phenomena which ensue after the absorption of poisonous quantities of ammonium compounds establishes beyond question that all the salts of this base exert the same action—varying only in intensity—on the organs of the nervous system and of the circulation. Lange and the writer have proved experimentally that even ammonium chloride does not, as some authors assume, form an exception to this rule; on the contrary, it is distinguished by an especially energetic action on the nerves.

b. After the administration of the chloride, the action upon the blood-pressure is more prominent than that upon the respiration, though the latter is sufficiently marked. (BOEHM, *op. cit.*)

2.—*a.* Sal ammoniac has a much milder local effect, and is much more poisonous when injected into the blood, than ammonia and the carbonate.

b. Mitscherlich, who observed the mucous secretions of the stomach and intestines in rabbits that were fed with sal ammoniac, and found them increased in quantity, says that the epithelium was softer and composed of fewer large cells; the swollen cylindrical cells separated from one another with the slightest motion, became admixed with the mucus in large numbers, and were soon dissolved in it. (NOTHNAGEL and ROSSBACH, *sub voce.*)

3.—*a.* Causten, Sprögel, Viborg, and Gaspard injected solutions of sal ammoniac into the veins of dogs and horses; large doses generally caused convulsions, sometimes paralysis, and death.

b. From the observations of Orfila, Smith, Arnold, and Moiroud, the salt appears to be a local irritant; and, when introduced into the

stomach in large quantities, causes vomiting, purging, and gastro-enteritis. It exercises a specific influence over distant organs; for the first three of the above-mentioned experimenters observed that inflammation of the stomach ensued, to whatever part of the body the salt was applied.

c. Arnold says it diminishes the plasticity of the blood. (PEREIRA, *op. cit.*)

AMYL NITROSUM.

Nitrite of amyl. Product of action of nitric acid upon amylic alcohol (fusel oil).

I. *Provings.*—1. *a.* At 10.29 p.m., pulse 54 and slightly irregular, 10 min. were inhaled for 2 m. At 10.31 pulse 136, regular; face much flushed, and strong throbbing in ears; conjunctivæ bloodshot; muscular tremor of arms; involuntary coughing. At 10.33 pulse 80, very irregular; at 10.36, 72, more regular; at 11, 80, regular. Temp. 97·7° throughout.

b. On another occasion, thermometer was placed under tongue and temp. found 97·7°. Pulse was 60. At 11.8½ 5 min. were inhaled for ½ m. Temp. now 97·9°; feeling of intense fulness in head, with violent throbbing in ears; face scarlet; slight perspiration on forehead; slight dyspnœa with inclination to cough. At 11·9½ pulse was 65.* At 11.11 nothing remaining save slight dizziness. From 11.13 to 11.48 temp. was 98·1°: pulse at first 72 and irregular, then 64.

c. Pulse 120, having been accelerated by fast walking; 5 min. were inhaled. Flushing of face and throbbing of head came on in 30 sec., pulse reaching 160. Mr. Bader examined eyes ophthalmoscopically, and found veins of disc enlarged, varicose, and tortuous; arteries were small, but not abnormally so.

d. Pulse 84, 3 min. inhaled. In 5 sec., pulse 108; in 10 sec., 120; in 15 sec., 144; throbbing in head now commencing, also flushing; left off inhaling. In 60 sec., pulse 124; still much throbbing. In 120 sec., pulse 84, very irregular; heavy aching all through head.

e. In the few cases in which sphygmographic tracings were made, it was found that in the very first stage of its action the upstroke produced by the contracting ventricle was almost imperceptible, giving unpleasant visions of impending syncope. This feature was apparently due to the excessive rapidity of the heart's action, and was succeeded in a very few beats by a sudden and jerking impulse which gave no positive indication of anything more than an exaggeration of normal conditions.

f. The respirations were not altered in frequency, but in all cases, coincidently with the flushing of face, great inclination to cough was experienced with an indescribable feeling of fulness about the chest.

* ? 165. Experimenter states that quickening of pulse was invariably first symptom of action of drug.—EDS.

g. In full doses of 8 or 10 drops, sight became impaired slightly, and outline of objects hazy and indistinct.

h. After all experiments, a feeling of lassitude remained behind for 30 or 40 m., and dull aching in head for some time longer. (GOODHART, *Practitioner*, vi, 12.)

2. I have given it experimentally to some 50 friends and patients, and have found that its inhalation invariably causes increased frequency of cardiac pulsation, accompanied with flushing of face, warmth of head, face and neck, and perspiration—warmth and perspiration often being general.* The pulse is the first tell-tale of its effects; in from 8 to 12 sec. its frequency rapidly increases. A pulse of 20 in the ¼ m. will often rise in 10 or 15 sec. to 40. The beating of the heart and of the carotids is in some persons very marked. The reddening of the face sets in later; it usually takes from 30 to 40 secs. before there is much flushing. It sometimes causes a little breathlessness and coughing. Now and then it gives rise to giddiness; and, in some, to a feeling of intoxication—girls who have inhaled it have often complained that it has given them a headache.† (TALFOURD JONES, *Ibid.*, vii, 214.)

3. Pulse being 66, and resp. 20, I inhaled the drug strongly for 30 secs. After a second or two my ears began to throb and my head seemed to swim round. In 25 secs., pulse 130, resp. 20, deep facial flush with hammering at vertex; then sensation seemed to travel back, and I felt throbbing in occiput; objects began to look yellow. Then came beating behind ears. After 2 m. all appreciable effect of drug had disappeared, pulse was 70 and breathing 24. An h. after, I was still conscious I had a heart, and a bruised sensation in the brain had been left behind. (Dr. EDW. BLAKE, *Monthly Hom. Rev.*, xv, 168.)

4. J. N. B— inhaled freely for 30 sec. At end of m. there was præcordial anxiety; accelerated heart's action; frontal humming; hot, red face; desire to sigh convulsively; sensation of a piston working up and down in the ears; primrose halo, even with eyes closed and shaded. During 3rd. m. there was bursting in forehead and vertigo.

	Pulse.	Resp.
Normal . . .	64 . . .	16.
After 90 sec. .	106 . . .	20.
„ 150 „ . .	68 . . .	20.—(*Ibid.*)

5. Dr. MORRISSON, in good health, on March 10th, at 10.25 p.m., entered room in which amyl nitrite had been escaping from a ʒij phial. Odour in room was pungent. Effects were: increasing sense of stupefaction, with flushing of face and scalp; sudden smarting of con-

* "Sometimes, while the rest of the surface glows, the hands and feet may become very cold, and this condition of the extremities may last many hours" (RINGER, *op. cit.*).

† "It may be proper to recall the fact observed by Hoffmann, that crude nitrite of amyl, as prepared by action of nitrous acid on amylic alcohol, contains hydrocyanic acid; this must of course be removed by caustic soda before experiments can be tried. The presence of this impurity was probably the cause of its discoverer, Balard, attributing to nitrite of amyl the power of producing violent headache. No such effect was experienced by the 15 or 20 students, of ages varying from 15 to 25, whom I have induced to try it." (GUTHRIE, *Journ. of Chem. Soc.*, 1859, p. 246.)

junctivæ, with injection, and dimness of vision as from a film; subacute smartings in various places, shifting position rapidly, most persistent in eyes, bases of lungs, and spine; increasing dyspnœa, with sneezings, coryza, and sighing respiration; pulse (sitting) 68, small, feeble. After enduring increasing discomforts for 20 m., respiration became a series of gaspings; and he left room. On waking next m. pains returned in renewed intensity, with catarrhal symptoms, and severe fronto-orbital headache. They recurred during d., at times accompanied by sighing respiration; and were intensified by odour being again inhaled. Urine clear, acid; sp. gr. 1014, free from albumen or phosphates, light clouds of an oxalate, and distinct traces of sugar. Pulse (sitting) 78—84, feeble. On 12th, during m., dull aching in cervical, removing to sub-occipital region, then passing away. During e. smarting in eyeballs, with injection. Urine clear, acid; sp. gr. 1020; trace of oxalates, and sugar in marked quantity. 13th. Symptoms the same, general lassitude. 14th. Occipito-frontal headache, with achings in r. renal region; smartings of conjunctivæ; urine same. 15th. Severe occipito-cervical achings, with increased frequency of renal; pulse (sitting) 70, regular. 16th—18th. Achings and conjunctival smarting remain, with weakness of eyes; sugar lessening. From this time the achings and smartings became occasional only. The sp. gr. of the urine fell; but there were still traces of sugar in it up to April 18th. Dr. Morrisson adds that many of the subjective symptoms returned on inhaling the 1_x dil.; and that the achings were increased by fatigue, and most marked during the e. (*Ibid.*, xxi, 320.)

6. Dr. ALDRIDGE caused seven persons to inhale nit. of amyl, and in every instance found (by ophthalmoscope) tint of retina deepened, and arteries perceptibly enlarged. (*West Riding Asylum Reports*, i, 95.)

7. In a case described by Dr. STRAHAN, a chronic maniac, æt. 53, had suffered for several d. from severe lumbago. A 10 min. dose of a 10 per cent. solution was injected hypodermically. "Immediately after the injection the pain disappeared. He got up from the bed, and was able to stoop and touch the floor with his fingers. In, as nearly as could be guessed, about 1½ m., he suddenly became deadly pale and sank back upon the bed." Then his face, head (bald), and neck, became congested, and he was strongly convulsed for about ½ m. The convulsions affected the face and arms strongly, the legs slightly. The teeth were ground, and the breathing was suspended. In a few m., after coming out of this fit, he was attacked by a second one, during which the heart's action become very faint.* He was made to inhale some chloroform and the fits did not return. (*Practitioner*, Dec., 1884.)

8. C. E. H—. Immediately after inhalation intense crushing pain on head, gathering into a feeling of confusion threatening unconscious-

* "I have seen one case where a woman immediately after a drop dose turned deadly pale, felt giddy, and then became partially unconscious, remaining so for 10 m. . . . One delicate woman, after gtt. $\frac{1}{30}$, passed for a few m. after each dose into a trance-like state, everything seeming to her unreal, and the breathing becoming rather panting" (RINGER, *op. cit.*).

ness. At same moment quick, somewhat sharp throbbing *in* head, and intense glowing of face, with general perspiration, especially in palms, where it was quite visible. Also frequently-repeated sensation as if scalp were jerked forward from occiput to verge of forehead. Pulse increased about 12 beats. Felt dull headache for about 3 h., and after 1 h. had slight epistaxis from l. nostril, a thing quite unusual. (Dr. C. WESSELHOEFT's provings, *N. Engl. Med. Gaz.*, xi, 388.)

9. L. A. P—. Inhalation followed immediately by dizziness and nausea; heat and redness of face; heaviness and pressure outward in forehead and temples. Though not warm, perspiration started freely, cold chills at same time running down back. Great restlessness and uneasiness; pain in head increased, accompanied by stupid, drowsy sensation, and burning in stomach up to throat. Fulness and pressure in stomach with belching of gas; oppressed, difficult and rapid breathing; feeling as if of weight on sternum; stitching pains in cardiac region and feeling of constriction (no palpitation); griping pain in umbilical region; drawing tensive pains in l. wrist and finger-joints; pulsations sensible in finger-tips; pulse (from 60) 72, hard and full. Heavy head and oppressed breathing continued about 3 h. (*Ibid.*)

10. W. R. B— inhaled 1_x dil. three times, with 5 m. between each inhalation. Head symptoms as usual; trembling sensation all over, and cannot sit still for fear of something dreadful happening; pulse not accelerated but irregular; sharp pain in region of heart; sense of constriction in throat; numb feeling in nasal bones (several h.) (*Ibid.*)

11. E. B. H— proved 2nd cent. dil. Took gtt. j. In 15 m. pulse 10—12 beats quicker. After 30 m. gtt. iij. In 13 m. more hands moist, head and body (especially abdomen) felt warm, in 30 m. warmth greater still. Took 3 drops more. In 13 m. slight blurring of letters when reading. Next d. 10 drops. In 5 m. heat in head and along œsophagus to stomach, lasting ½ h. After 1 h. took 20 drops. In 10 m. heat, chiefly in stomach; moist skin; in 16 m. chill crept over back and sides. Next d. 40 drops. In 12 m. pulse rose 20 beats, remained so for some m., then gradually fell to normal; very slight pressure in head, increasing (with slight throbbing in temple) up to 36 m., when violent exercise during one m. produced dull headache; later, heat from gas caused dull pain to extend from temple to occiput, principally left sided. Dull occipital pressure remained 2—3 h. After exercise, more violent palpitation than usual. (*Ibid.*)

12. H. E. R— proved same, 1.15 p.m. Soon after gtt. j, peculiar sensation in r. chest. 2.30, repeated dose. Tingling sensation in different parts of body; slight dull aching in r. chest. 3, same dose. In 10 m. slight frontal headache; chest pain more severe, but not constant. At 4, 2 drops. Pain in back of eyes on looking at near objects. At 4.30 took 3, and at 5 took 4 drops. Slight pain in r. temple; general weakness felt about 10, with tendency to perspire easily on slight exertion. Next d. woke about 5, with extremely dry and parched sensation in mouth and throat; and on rinsing mouth noticed marked stiffness and dryness of lips. (*Ibid.*)

13. Miss A. W. S— proved same. At 1.30 p.m. took 1 drop. In 5 m. pain in r occiput; sudden sharp pain under l. eye; face flushed

and hot (last two transitory only). At 3 another drop; at 5 2 drops, and at 9 repeated dose, without new symptoms. Two d. later took 5 drops. Great heaviness of head in front, head would fall from side to side; overpowering drowsiness for more than 1 h.; severe colicky pains in abdomen, increased on lying down. At 7.45 p.m. repeated dose. No marked symptoms at n.; in m. severe dull heavy pains across forehead; pain and weakness in loins. On another occasion, after 10 drops, pulse fell, in 25 m., from 83 to 63, after 2 h. rising to 73, and not returning to first (its normal) rate for 2 d. more. (*Ibid.*)

14. L. A. P— proved same. At 7 p.m. took 3 drops. Dizziness with slight nausea, worse when eyes are closed; dull, heavy pressure over eyes as if heavy weight were within. At 8 repeated dose. Painful pressure outward in temples, especially l., with dull heavy aching in occiput extending to nucha (while walking); burning in stomach and crampy pain; later, throbbing in temples. At 10, same dose. Sleep restless, full of anxious dreams; frequent waking, with severe pain in temples, and in stomach and bowels. Next d. vertigo, headache, and nausea, on rising; anorexia. At 9 a.m. 3 drops. Severe pain as before, in temples, occiput, and over eyes, with burning in stomach; everything appears as if trembling and wavering; aching in eyes when in sunlight, with profuse lachrymation, followed by sneezing; drowsiness; crampy pains in umbilical region; sense of oppression in chest, especially in lower sternum; drawing pains in l. side between 7th and 9th ribs, short but frequent; pulse quickened, full and hard; skin moist, and free perspiration during moderate exercise. (*Ibid.*)

15. L. G. H. R— proved same. At 1.45 p.m. 2 drops; pulse 63. 1.55, pulse 68; slight pain over both eyes. 2.5, dull pain in occiput; pulse 65, not regular; slight heat in face. 2.15, pulse 68; burning in face; boring pain in occiput; uneasy feeling in extremities. 2.25, face flushed and still hotter; occipital pain continues. At 3.17 repeated dose; pulse 63. 3.27, dull feeling in forehead; beating of arteries felt in fingers; occipital pain returned. 3.37, pulse 70, and irregular; burning in face; pain in cardiac region, extending round to back. 3.47, pulse 65; face and head as before. 4.5, pain in occiput, aggravated by heat of room and by writing; when forehead was painful occipital pain was less severe. 4.30, after writing, pulse 63, and quite full; heat of face still sensibly felt. (*Ibid.*)

16. H. P. C— proved same. This student is described as "sensitive, inclined to neuralgia." After doses of 1 drop, 3 drops, and 6 drops respectively, a number of slight and transitory pains occurred in various parts of body; but a later dose of 6 drops on same day had no effect. Next d. 10 drops produced no decided symptoms, but he was restless after it. Four d. later took 15 drops, after which there was slight oppression at fronto-parietal suture, then proceeding to frontal bone; dimness of sight; pulse accelerated. After ½ h. took 20 drops, with no further effect; and in ¾ h. more 40 drops, which simply made him confused and drowsy. (*Ibid.*)

17. Miss A. E. S— proved same. After taking, at ¼ h. intervals, 3 drop doses, in 10 m. face flushed, in 25 m. sharp pain in l. calf;

slight griping in bowels; feeling as though band were drawn tightly about head; dull pain over eyes. At n. nausea; dizziness; also contraction of muscles in hypogastrium, which felt hard on pressure; rumbling in bowels. (*Ibid.*)

18. Miss M. M— proved same. After 1 drop had, in succession during ¾ h., slight discomfort in r. shoulder; decided dizziness and heaviness of head; drowsiness; suggestion of pain in r. side of head; burning of r. cheek, extending up into eye and round to ear; heat in l. ear; lameness of flexors of r. arm. After 1 h. all symptoms subsided. (*Ibid.*)

19. *a.* The subjective colour-sensations which occur under the influence of amyl nitrite are not alike in all cases, as Schröder (*Zeitsch. f. Psychiatrie*, xxxii, 527) found in a number of patients, but are only now and then very distinct, and are not identical at every inhalation. In their typical form they consist, according to Pick (*Centralblatt f. d. medic. Wissenschaften*, 1873, p. 866), in the appearance of an intensely yellow halo around any fixed point upon a clear background. The yellow circle is surrounded by a bluish-violet border. This phenomenon is probably nothing more than the projection of the macula lutea, and the bluish-violet border its complementary colour. The patients treated with nitrite of amyl by Sander stated, of their own accord, after the inhalation, that for some time everything had seemed yellow to them. It could not be clearly determined whether or not this phenomenon was due to the yellow colour of that portion of the field of vision which corresponds to the macula lutea. The yellow vision disappears only after some m., growing gradually paler.

b. SCHRÖDER also observed a diminution of the clearness of sight. Patients who had inhaled nitrite of amyl for a considerable time were unable, *e.g.*, to see clearly the figures on a large clock, which seemed blurred to them. Normal vision returned immediately after they stopped using the drug.

c. After inhalation of drug, and to a certain extent as an after-effect, Sander observed profound collapse, which appeared suddenly, and was characterised by fainting, falling to the floor, pallor of face, smallness of pulse, and cold clammy perspiration. Samuelsohn describes a similar case, in which a patient, while fully under its influence, made a few deep spasmodic inspirations, and presented coldness of skin, which was bathed in sweat, and a small, thready, and extremely slow pulse, while consciousness, though weakened, was not entirely lost. Urbantschitsch has drawn attention to similar occurrences (*Wiener Med. Presse*, 1877).*

d. BOURNEVILLE states that tremor of lips and difficult mastication often follow inhalation (*Gaz. Méd. de Paris*, 1876, No. 13). Urbantschitsch noticed dryness of mouth lasting from 12 to 24 h. after its use. Lalendorf (*Berl. klin. Wochenschrift*, 1874, p. 539) noticed occurrence of a violent dry spasmodic cough in a patient, on two occasions, during a four weeks' course of nitrite of amyl. A number of

* "In one or two instances I have known alarming prostration to supervene" (H. C. WOOD, *op. cit.*).

authors have reported distressing nausea and vomiting as following repeated inhalations. (LEWIN, *op. cit.*)

20. The paralysing effect on the arterial system is well shown by the sphygmographic tracings, the flushing of the face, and the increase in the size of visible arteries like the temporal, which often becomes notably large—sometimes, indeed, doubled in size, and branches previously invisible become plainly apparent; also by the interesting fact observed by Talfourd Jones, who, while cupping a patient over the loins, and finding that blood would not flow, administered nitrite of amyl by inhalation, when the cuts immediately began to bleed freely. (RINGER, *op. cit.*)

21. Administering drug by inhalation to a patient in *status epilepticus*, Dr. CRICHTON BROWNE found it excite profound and repeated yawning, and this effect was confirmed by observations on other subjects in a similar state of coma. Given to a dog in this condition (from convulsions), animal beat ground with fore-paws and opened and closed mouth with rhythmic regularity. "In all the observations there were movements of the mouth. These were exceedingly various, the most common being a short munching movement of the lower jaw, which was depressed and elevated as in the act of chewing. The next most common movement was a smacking of the lips, as if in the act of tasting." (*Practitioner*, 1883.)

III. *Experiments on animals.*—1. *a.* In the lower animals the first stage of the action is like that described in man. After this the breathing becomes violently hurried and panting, progressive muscular weakness and diminution of reflex activity ensue, and finally death from failure of respiration, sensation and consciousness being preserved almost to the last. Convulsions are sometimes present, but in my experience more often the animal is exceedingly quiet throughout the poisoning.

b. Elaborate experimental studies of the action of the nitrite of amyl upon the circulation in animals have been made by Dr. Lauder Brunton (*Journ. of Anat. and Phys.*, v), by myself (*Amer. Journ. of Med. Sciences*, July, 1871), and by Dr. Amez-Droz (*Arch. de Phys.*, Sept., 1873). The results are so uniform and in such accord that they must be accepted as proven facts. Although the pulse is very much increased in frequency sometimes from the very beginning, the arterial pressure is diminished, and finally reduced almost to zero; and the fall of pressure occurs equally after section of vagi as at other times. As the number of heart-beats in the uninjured animal is increased rather than diminished, whilst the strength of the individual beat is not perceptibly lessened, it is evident that, at least in the early stages of the poisoning, the diminution of tension is not cardiac in origin, but must be due to dilatation of the arterioles. This conclusion is confirmed by an experiment of Brunton's, who found that if the descending aorta was tied high up no perceptible fall of pressure was produced by inhalation until very late in the poisoning, when the heart itself was acted upon by the drug. . . . Is the dilatation centric, due to an action on the vasomotor nerve-centres, or peripheric, due to a direct action on the muscular coat of the arterioles? It must be peripheric, it cannot be centric, since, according to the experiments of Brunton and myself, it occurs

when, by division of the cord, the arterioles are separated from the vaso-motor centres.* It must be due to a direct paralysing action of the drug upon the coats of the arterioles, a conclusion confirmed by our knowledge of the local action of the nitrite upon muscular tissue. . . In the latter stages of the poisoning another factor enters into the causes of lessened blood-pressure, the heart's force itself becoming largely extinguished by a direct action of the poison on the muscle.

c. I have found that the diminution of reflex activity and of voluntary motion which undoubtedly occurs in toxæmia from this agent is chiefly spinal in its origin, since after death the nerves and muscles preserve, though in an impaired condition, their functional power. Over the sensory centres it has but little influence.

d. A very interesting phenomenon of nitrite of amyl poisoning, discovered by Dr. F. A. Hoffmann, is the appearance of sugar in the urine. He found (*Reichert's Archiv*, 1872, p. 747) that in the rabbit a hypodermic injection of 0·111 to 0·113 gramme of the drug is enough to cause glycosuria. If twice the amount be used the sugar becomes very abundant, and continues to be present from 12—30 h. Therewith is a great increase in the amount of the urine.†

e. Nitrite of amyl, in whatever way exhibited, most remarkably reduces animal temperature. This occurs even after death in those cases in which post-mortem rise or continuance of high temperature normally takes place. I have also experimentally determined that it is associated with diminished excretion of carbonic acid. It must therefore be due to a direct arrest or check of tissue changes, or of oxidation within or without the blood. The vapours of the nitrite have a very marked influence over oxidation outside the body, as is shown by many facts, among others the extinguishment of glowing phosphorus by a few drops of the amyl salt diffused through the jar. It cannot be doubted that within the economy the same thing occurs.

f. When an animal inhales the nitrite of amyl, the arterial and venous blood soon becomes of a nearly uniform hue, a chocolate tint. Dr. Arthur Gamgee (*Phil. Trans.*, 1868, p. 589) has found that the nitrite makes with the oxyhæmoglobin a compound which has no power of absorbing oxygen. (H. C. Wood, *Therapeutics*, sub voce.)

2. Lauder Brunton finds that when vapour of nitrite of amyl is passed directly into trachea of rabbit, blood pressure immediately sinks very much, but pulse-rate, which is naturally quick, remains unchanged. In dogs, where pulse is slow, inhalation produces comparatively little

* "Recent experiments of Nussbaum, if correct, show that in the frog, and therefore probably in other animals, the vaso-motor centre is not situated solely in the medulla, but extends the whole length of the spinal cord; for after its section below the medulla, time being allowed for the animal to recover from the shock of the operation, irritation of a sensory nerve will cause contraction of the arteries. If Nussbaum's observations are confirmed they would seem to show that nitrite of amyl may act through an influence on the vasomotor centre" (Ringer, *Therap.*, sub voce).

† "It has been experimentally shown that diabetes is produced by dividing the sympathetic nerve of the liver, and thereby causing dilatation of the hepatic vessels, so increasing the quantity of blood passing through the liver. Probably nitrite of amyl acts by its influence over the vaso-motor nerves, increasing the quantity of blood passing through the liver" (*Ibid.*).

effect on blood pressure; but pulse becomes remarkably quick. If vagi be first divided, so as to quicken pulse, pressure falls as in rabbit. (*Journ. of Anat. and Phys.*, v, 92.)

ANACARDIUM.

Semecarpus Anacardium, L. (*A. orientale*). Marking-nut. Nat. Ord., *Anacardiaceæ*.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part I of original, Vol. of English translation. Contains 622 symptoms from Hahnemann and seven others.

2. Dr. HERRING, æt. 53, nervous health good, took, April 27th and 28th, 4 doses of 1_x trit., gr. j each. On 29th, feeling even better than usual, took 3 doses of gr. ij each. On 30th, 3 doses of gr. iij each. May 1st.—Night more dreamful than usual; some frontal headache. This m. took 3 doses of gr. iv each. 2nd.—Disinclined to read this m., listless; some intermitting neuralgic pain on flexor aspect of r. thumb. No med. 3rd.—Dreamful sleep and pain in thumb as before. No med. 4th.—Took 3 doses of gr. v each. 5th.—Activity of brain during sleep, slight headache, indisposition for mental exertion; also some uneasiness of heart, pulse normal. Took 3 doses of gr. vj each. At 4 p.m, soreness of scalp. Neuralgia in thumb continues, especially when pressed. 6th.—Troubled dreams last n.; in m., heaviness and disinclination to rise; more neuralgic twitches in thumb and once in little finger; discomfort about heart. At 11.30 a.m., neuralgia in r. temple, and at 7 p.m. same in l. calf. Cardiac oppression continued during d.; heart felt weak, as if working too slowly; pulse 64; some irritability of bladder. Took 3 doses of gr. vij each. "7th.—The worst night I have had, from disturbing dreams, which were of a gloomy desponding nature. I should call them nightmare, for there was no sense of personal danger; but there was an oppressive notion that everything one did would end in vanity and vexation, and that nothing could extricate me from impending poverty. By 11.30 a.m., oppression of spirits was almost gone, but there was still a feeling of irresolution, awkwardness, and querulousness. Very drowsy; could not read." No more med. Symptoms now abated; but up to 11th neuralgic twinges in extremities continued to trouble him, and brain continued morbidly active during sleep till n. of 9th. (*Monthly Hom. Review*, July 1, 1885.)

3.—*a.* Louisa R—, on May 5th, took gr. ix of same, in 2 doses, and on 6th three doses of gr. vj each. At n. disagreeable dreams, and next d. unusual activity and impatience.

b. On 27th, took 3 ten-drop doses of tincture. On 28th, no symptoms; took 3 doses of gtt. xx each. At 9 p.m., complained of incessant irritation of skin, which she described as "furious." It lasted till she went to sleep, extending even to toes. Took no more med., but had return of irritation now and then next d., and for 4 following nights. No nervous symptoms were produced this time. (*Ibid.*)

4. According to Dr. Städeler, there is found in the cellular inter-

spaces of the fruit of the anac. orient., a balsam-like fluid, consisting of a fatty acid and a chemically indifferent substance called cardol, an oleaginous substance, of vesicating power. Frerichs has frequently used the ethereal extract of cardol as a vesicant. Painted with a camel-hair brush on the sound skin, it dries in rapidly; and in a few m. causes a slight burning and itching, gradually followed by redness and swelling. In about 12 h. epidermis rises in form of wheals, firm and solid, like those of urticaria tuberosa. In course of time this exudation is saturated and softened by an effusion of serum, and breaks down into a sero-purulent fluid, converting wheals into vesicles, at first pea-like and flat, but soon coalescing to form large flat bullæ, which open and discharge a turbid purulent fluid. Cuticle then falls off, leaving exposed cutis swollen and congested, suppurating profusely. If protected, spot may skin over in 10—12 d. more; but on friction &c., fresh exudations, and even inflammatory action, will occur at edges of sore. (*Deutsche Klin.*, 1852, 229.)

5. On m. of Feb. 16th, Dr. Reil rubbed on back of hand (space size of a sixpence) a small quantity of the brown slimy fluid contained between the shell and kernel of an anacardium bean. In e., skin was slightly reddened. On 17th, 18th, and 19th, nothing was noticed, only the redness appeared to increase in the warmth, and the skin became shrivelled somewhat. On the 20th, 21st, and 22nd itching was felt, the place that had been rubbed with the juice was elevated above the level of the rest of the skin, the skin, which was black in the furrows, seemed as though it would burst. The itching increased and the epidermis desquamated in small pieces, but the new skin beneath it was not smooth, but uneven and shining. On the 27th, the whole place was clear of the old epidermis, and presented the appearance of an inflamed cutaneous surface covered with small miliary pustules, the itching was considerable, especially during the n., and in the heat; the elevation of the circumscribed spot as of the surrounding skin was increased, and was from ¼ to ½ a line high. Each pustule exuded from its apex a fluid which dried into a thin yellow crust. In the night of the 27th the itching was quite intolerable, and he must have scratched while asleep, for the exudation next morning was greater, and round about the place the skin was studded with red inflamed spots, the whole back of the hand was swollen and hot. On 1st March the state was the same, only that by the friction of the glove apparently the small spots surrounding the principal place swelled for some hours up into wheals, then disappeared; itching considerable. On the 2nd and 3rd, the burning was less, as also the exudation and crust formation. The whole place had the appearance of a hypertrophy of the skin, the surrounding red spots only became more distinct by scratching. On the 3rd, e., there was desquamation; during the following days this went from the periphery to the centre, and was repeated several times till the 7th; but in proportion as the spot on which the juice had been rubbed became regenerated, the surrounding inflammation increased, producing a surface covered with papules and wheals, which did not exude, but on the slightest irritation became bright red and as if indurated, so that the movement of the wrist, over which towards the

forearm the wheals extended, was hindered by the formation of thick folds. During the subsequent days a bran-like desquamation occurred here also, which nearly ceased by the 11th, when the natural appearance of the skin was almost quite restored. (REIL, *Z. f. h. K.*, ii, 44.)

II. *Poisonings.*—1. *a.* A woman, who had long suffered from chronic rheumatism of the thigh, hung a fruit of anac. or., through which she had bored a hole, on the affected limb. There occurred a bright scarlet-red eruption over the whole body, especially on the affected thigh and abdomen, and such swelling of those parts that the patient looked like a barrel. The upper part of the thigh had a circumference of three feet, slightly diminishing towards the knee, but increasing in an extraordinary degree in the calf. The skin of the abdomen to above the navel was very considerably swollen and inflamed. At the same time there were the most severe burning pains and violent fever. From laying the diseased upon the healthy thigh the inflammation was transmitted to the latter, though in less degree. Patient was well in five weeks.

b. A confectioner applied the same remedy for lumbago. The same symptoms occurred as in the above, only not lasting so long.

In both cases great desquamation of the cuticle occurred when they were getting better. (*Med. Centr. Ztg.*, 48, p. 852, quoted in Z. *f. h. K.*, i, 117.)

2. *a.* A very corpulent gentleman, æt. 50, otherwise quite well, only subject to periodical lumbago and rheumatic toothache, wore an anacardium nut suspended from his neck by a string passed through a hole bored in it. In 8 d. there came an itching on the chest, aggravated by warmth and exercise, and compelling constant scratching; a few days later the itching spread over the abdomen and axillæ. It was attended by an eruption of numerous larger and smaller red, inflamed, and elevated wheals. He still continued to wear the bean. The itching increased, was disagreeable by d. and kept him awake at n., he got feverish, lost his appetite, and was constipated. When examined his chest, axillæ, upper arms, belly, scrotum, and thighs, were not only found to be covered by wheals exuding a viscid yellowish fluid, but some of them had turned into warty excrescences with thickened epidermis. All the intermediate skin was of an erythematous redness, and the itching frightful; scratching brought no relief, on the contrary, increase of pains and of the discharge, so that many places were covered with yellow crusts. He was washed with lukewarm oatmeal gruel and soap baths. The inflammatory symptoms went off in 8 d. and desquamation ensued.* (Z. *f. h. Kl.*, ii, 44.)

3. K. Künzel on the 15th Dec. was engaged in preparing a tincture of anacardium. He pounded the seeds in a mortar, and as they were fresh and juicy the juice several time spirted into his face. This he took no notice of, as he did not know the powerful action of these seeds. In the e. there occurred violent burning on chin, and later small vesicles, which when rubbed exuded a quantity of fluid. Next m. the l. side of the face was much swollen, and covered with a quantity of small pock-like vesicles. 1 dr. of camphor 1 had no

* For similar cases see *Brit. Journ. Hom.*, xxxiii, 546, and LEWIN, *op. cit.*, p. 224.

particular effect. In the forenoon violent burning, which went off by e. after 2 dr. of rhus 2. At n. slept well, but next m. the swelling was much greater; not only was the l. eyelid quite swelled up, but small vesicles appeared on the backs of both hands. About noon the swelling of the eyelid abated somewhat, and some of the vesicles burst and discharged a yellowish transparent fluid which hardened in the air to a transparent yellow mass. Towards e. the burning increased. The 3rd d. no change was perceptible. The swelling had fallen more and more to the lower part of the cheek. On the 4th d. the disease underwent a change; instead of the burning a very painful itching came on combined with a shooting sensation like a gnat bite; then weariness which had shown itself the first d. went off. Could not sleep at n. for itching; there was also toothache on l. side, which recurred several times next d. The following days until the 24th the swelling still declined, and the face healed up in some places. The itching still remained, especially on going to bed at night. On the 25th the swelling was completely gone from the face; there were still some sore places, which gradually healed up. The hands were harder to cure; the coldness of the weather no doubt delayed the healing up, and the scabs were frequently knocked off, so that on the 29th there still remained some unhealed spots. (Communicated by Dr. TRINKS, *Z. f. h. K.*, ii, 131.)

4. A boy, æt. 13, painted figure of anchor on l. arm with juice of marking nut. In a week arm became red, and a number of small pimples appeared. In n. face became swollen and red, as also abdomen and thighs, on which arm had rested. When seen next d., arm and hand bright red and swollen, as in erysipelas. Painted spot was abraded; over rest of forearm many vesicles of various sizes and shapes, with minute pustules. Arm did not pit on slight pressure, but colour readily disappeared for the time. On back of r. hand and in front of wrist, also on r. cheek, a few raised red spots, sharply defined, surmounted by minute white pustules. Redness and swelling of face were chiefly about eyes, l. eye being quite closed. On chin a yellow crust resembling that of eczema. On inner side of each thigh at upper part was a large red ill-defined patch, with one or two transparent vesicles: on lower abdomen a few spots as on r. hand. Eruption caused considerable itching. (F. TAYLOR, *Med. Times and Gaz.*, 1875, ii, 519.)

5. A. B—, æt. 28, while extracting juice of bean let some of it get into crack on l. wrist (Dec. 10th). After 12 h. wound itched, and scratching increased irritation. In afternoon of next d. vesicles appeared round wound, and higher up arm towards elbow. Skin became deep red, hot, and swollen, to above elbow. At first not much itching, but on 2nd d. this was considerable, and so much worse at n. as to hinder sleep. On e. of 12th scrotum became inflamed, without vesication; also face, eyelids and upper r. cheek presenting erysipelatous appearance, and feeling hot, stiff, and burning. There was also a red patch at bend of r. arm, and on r. hand. Dr. Yeldham saw him on m. of 13th. He looked ill, worn, and languid (probably from want of sleep); expressed himself as feeling depressed and irri-

table, disinclined to move, and impatient of the play of his children, which usually afforded him pleasure. He also complained of confusion of head and memory. If he laid a thing down he forgot where he placed it, &c. On waking after ½ h. sleep that m. every object appeared a long way off. This lasted about 1 h., and did not recur. There was loss of appetite and some thirst; pulse somewhat accelerated, but weak; skin cool. Two d. later (though rhus 1[x] had been taken) arm was more swollen and tense, redness deeper and more uniformly diffused; colour disappearing on pressure, and returning directly this is removed. Face and scrotum better. During next 2 d. (under bell. θ) rapid improvement occurred, and on 17th hardly anything remained. (YELDHAM, *Month. Hom. Rev.*, xx, 95.)

ANGUSTURA.

Galipea Cuspária, St. Hil. Cusparia bark. Nat. Ord., *Rutaceæ*.

I. *Provings*. 1. HAHNEMANN, *Mat. Med. Pura*, vol. vi of original, vol. i of English version. Contains 299 symptoms from self and 8 associates.

2. 11th March, 8 a.m., took 5 drops of tinct. Drawing in nape. Aching in temples and sinciput. Aching in wrists. 9 a.m., great coldness in back with icy-cold hands and fingers, frequent aching in temples, drawing in elbows and toes, violent shooting on inside of l. foot, spreading over internal ankle upwards. Prickling in r. toes, and the same violent, shooting pains on inner side of r. foot spreading up towards leg. The coldness with the alternating pains lasts longer than ½ h. 4 p.m., 5 drops. Shooting in calves. Aching in elbows. Pressure in sinciput. When sitting bruised pain in knees, later the same in arms. Drawing in fingers. Several times strong pressure from sternum to r. as with a blunt body. At 5 p.m., several times pressure in r. jaw; later this same pressure in sternum to l. several times repeated. Frequent micturition, much urine, almost as clear as water.—12th, 8 a.m., 5 drops. Pressure in knees. Drawing in forehead and pressure in temples. 9 a.m., chilliness over back; cold hands and feet. Pressure in shoulders, toes, and feet. Shooting in ears, shooting in r. half of thorax, pain of weariness in knees, drawing in fingers. 10 a.m., when walking, a peculiar feeling of lightness and comfort in chest. Shooting in l. half of chest and shin bones when walking. Bruised pain in arms and legs. Aching and drawing in feet.—13th, 8 a.m., 10 drops. Pressure in temples, feet, jaw, arms, several times, as with a blunt body, especially severe in sides of forehead and on dorsum of foot. 8.30 a.m., great coldness in back, icy-cold hands and fingers, pressure and drawing in sides, pressure in forehead, weariness in knees, drawing in back; all lasting longer than ½ h. During d. some of above symptoms.—14th, 8 a.m., 10 drops. Drawing in ankle-joints, head, and fingers. 8.30 a.m., coldness in back, cold hands and fingers; aching in shoulders and tibiæ for ½ h. Later, when walking, drawing and aching in all joints. 4 p.m., 10 drops. Boring temples and sides of head. Pressure in shoulders and knees. 4.30, coldness in back, cold hands and feet, drawing in forehead, shooting in r. thoracic wall and in feet. Much scraping in larynx and short cough, which came yesterday also. No symptoms observed any night.—15th, 8 a.m., 15 drops. Drawing and aching in head, chest, shoulders, feet. 8.30 a.m., coldness in back, cold fingers and hands, pressure in arms. The cold lasts ½ h. or more. Later, when walking, some of above pains. Between 12 and 1 p.m., great and repeated aching in forehead and temples. Later, very frequent severe aching pains in sinciput, with feeling of weight, heat, continued. Drawing and aching in hands and fingers. 4 p.m. The pains were repeated later. Night good.—16th. After rising, drawing, aching pains in feet, in muscles of thighs, in muscles of arms, in knees, in edge of feet, in cranial bones. Frequent dry cough. 8 a.m., 15 drops. Pressure on sides of head, drawing

in r. facial muscles. Frequent drawing in feet, especially outer edge of foot. Drawing in toes. Bruised pain in knees. Drawing on sides of occiput. 8.30, coldness in back, cold hands for ½ h. Above pains recur later. Strong pressing in r. foot. Since 4 d. much itching on skin on various parts of body, scratching does not allay it much. Great pressure above r. eye and deep in r. orbit. Later, frequent rigor over back and cold hands. During d. much call to urinate, much clear urine. Great pain in elbows as if bruised. Frequent drawing in occiput, in sides of head, in fingers, in shoulders, and wrists, shooting deep in r. ear, 6 p.m.—17th, 8 a.m., 15 drops. Before taking the medicine there was drawing in the sides of the head. Then drawing in legs and feet several times. Pressure in shoulders and knees. Great aching in fingers, hands, muscles of arm. Aching pains in muscles of thigh. Shooting in skin over tibiæ. All these symptoms recur. Severe boring in ankle-joints and feet, frequent aching in head. 8.30 a.m., coldness in back, cold hands; during the coldness and afterwards the above pains; drawing in facial muscles. During d. same pains, very severe in forehead, tibiæ, feet, and hands; shooting in r. facial muscles; shooting in l. zygoma. After 6 p.m., no more symptoms. Stool harder than usual.—18th, 8 am., 20 drops. Soon, drawing in toes, pressure in feet, ankles, legs, and shoulders. Drawing in head, hands and fingers. Aching in knees. Boring and pressure in crown. Aching and drawing in muscles of arms. Shooting and drawing in l. shoulder. Wandering pains in back. Severe shooting in soles. Drawing pains in pectoral muscles. Aching at both sides of head. All these symptoms recur. 8.30 a.m., coldness in back, cold hands and fingers, shooting and aching in calves, drawing in legs, aching in forehead, drawing at sides of tendo-Achillis, drawing in lower jaw, shooting in toes, prickling in facial muscles, aching in knees and thighs. The coldness and accompanying symptoms lasted about ½ h. After cessation of coldness, the pain still continued, was sometimes very severe when walking, as frequently so as when sitting, but the parts in movement seemed to be less affected than those at rest. Shooting in r. eyelids, 4 p.m. Shooting in tip of tongue several times. Frequent aching in muscles of arms, in knees, ankles, legs. Pressure and boring in several places of head, in forehead, pectoral muscles and dorsal muscles. After 6 p.m., severe aching pains in muscles of arms, in elbows, knees, fingers. Aching sometimes severe in facial bones, especially zygomata. Aching in forehead and temples. 8 p.m., aching in wrists and fingers.—19th, 8 a.m. Aching pains in wrists, feet, knees, muscles of arms. During d. aching and drawing in feet, wrists, thighs; aching often particularly severe in forehead and sides of head, coming suddenly and lasting several minutes.—20th. Some of the previous pains in the wrists, knees, and head, more observed when sitting than when walking. Sometimes very severe boring in forehead and sides of head. Bruised pain in knees. Pressure in insteps and in toes. Aching, often very severe, in wrists. All these symptoms recur frequently. 7.30 a.m., 20 drops. Drawing in feet, shoulders, arms, and muscles. Aching in head, toes. Drawing in sides of tendo-Achillis, in calves. Aching in ankle-joints and shoulders. 8.30 a.m., coldness in back, cold hands, drawing in facial muscles and the former pains in joints. Coldness lasts ½ h. During d. the formerly-described pains appear, worse and more frequently when sitting than when walking.—21st, m. Pressure in shoulders, knees, wrists. Drawing in face. 3.30 p.m., 20 drops. After an increase of the pains, viz. severe aching in forehead, in various parts of head, in feet, in legs, in toes, there came on, at 4.45 p.m., coldness in back and limbs, accompanied by the former symptoms. Aching pains in nuchal and dorsal muscles. The coldness lasted ½ h. Afterwards occurred the symptoms already known, declining in the evening.—22nd, 8 a.m., 30 drops. The well-known symptoms recur, especially severe boring in temples and forehead, in feet, ankle-joints, wrists, masseter muscles, arm muscles. 8.30 a.m., coldness in back and limbs as before with accompanying symptoms. Severe aching pains in muscles of legs. Severe bruised pains in legs lasting several hours. During all the proving had a daily stool which was hard, contrary to what was usual.—23rd. Some of the pains in arms and legs reappeared.—24th. Aching in wrists and ankles, fingers, knees, toes. Pressure in forehead and sides of head, sometimes very severe, lasting some m. Drawing in toes. Aching in arm muscles, often very severe. Aching and drawing in face and behind ears often very severe. Severe aching in leg muscles.—25th. Aching in ankle-joints. Drawing in facial and dorsal muscles. Aching in shoulders and elbows.—26th. Same symptoms, especially much pressure in forehead and sides

of head.—27th. Same symptoms, especially severe pressure in sides of head. A hard stool every day.—28th. As yesterday. The following days some of the former symptoms reappeared. Ever since the proving, a month ago, has daily one hard stool, though formerly habitually loose. (LEMBKE, *N. Z. f. h. K.*, xvii, 75.)

ANTHEMIS NOBILIS.

Anthemis nobilis, L. Roman Chamomile. Nat Ord., *Compositæ*.

I. *Provings.*—1. Mr. —, æt. 26, in good health, bowels act daily, but stools are hard, lumpy, and difficult.

a. Jan. 4th.—At 6 p.m. took 8 drops of a tincture prepared by maceration from whole plant. At 2 a.m. woke with intense desire to urinate; passed normal quantity, but urging continued 4—5 h. afterwards, felt whenever he awoke; at same time intense pain in and over bladder, as if from distension, extending along both spermatic cords (so far as inguinal canal), which felt as if varicose. On waking about 4 found that emission had occurred. Pain occasionally felt, in varying degree, for 30 h. longer. On m. of 2nd d. fæces softer and easier. Exceedingly cheerful this and the two following d.; also much desire and facility for mental exertion. On 7th pain in bladder increased; none in cord; after slight exertion in walking (though weather was very cold) got hot, with much perspiration on head and face. In e. lips very dry, with considerable thirst; drank about 16 ounces of cold water, with relief. 8th.—Still occasional pain in bladder. Bowels have moved easily up to this time; but from ninth became costive as before.

b. On 18th took 4 drops at midnight. At 6 a.m. return of vesical tenesmus and pain; former relieved by urination, but not latter. Pain had abated by 11. This d. bitterness in mouth; dysphagia for liquids; eyes watered much in open air, but he did not feel cold, though temperature was 20°. 20th.—Bowels moved easily at 6 a.m., fæces softer than usual, pale yellow. Felt extremely lazy and a little peevish. 21st.—Pain in forehead and eyes, increased by stooping and much worse about 2 h. after food; carotids feel turgid; pulse (usually 75—78) 96, full and soft; at 9.30 p.m. hands and feet extremely cold. 22nd.—Frontal pain continual, diminishing gradually up to the 26th. Last n. had to micturate 4—5 times; total quantity not greater than usual. 23rd, 1.30.—Appetite, particularly good on previous d., now absent; and therewith pain in r. hypochondrium, followed by urging to stool, which resulted only in slight passage of hard mucus. Pain lasted rest of d. Little capability that e. and next d. for mental exertion. 24th.—Pain in hypochondrium all d. Stool harder, darker, and scantier than usual. 25th.—In m., still pain in side. 26th.—Weary pain in loins, increasing and decreasing between 9.30 and 3. (Dr. BERRIDGE, *Monthly Hom. Rev.*, xiii, 475.)

2. Mr. —. Sanguine-nervous temperament. Jan. 12th, at 12.30 p.m., took ʒij of tinct. in water. Immediately much pleasant warmth in stomach, with (soon after) desire for food, which dinner gratified. Next d. took ʒj at 11 a m. with same result (sense of taste also quickened). Repeated dose daily up to 20th. On this day., at 10.45 a.m., 1¾ h. after taking drug, extreme feeling of cold, beginning in legs, then in back, then in whole body. At 11.30 much nausea. At 1, on going into open air, nausea went off, but coldness much increased, with dull frontal headache; dull aching in limbs, especially in large joints and loins; great lassitude, especially in gluteal region; eyeballs tender on pressure; skin dry, cutis anserina; veins in extremities reduced in size; cold creeping over whole body, especially in scalp (where it began), increased on leaving fire; no appetite; tongue with slight moist white coating, especially in centre; no thirst. Pulse at 2.30 108 (usually 80), small and weak; it gradually decreased towards n., resuming its normal rate next m. 21st.—Symptoms greatly abated, and towards n. felt quite well.

Once or twice during proving noticed some dysphagia for liquids, apparently from constriction about pharyngo-œsophageal junction. (*Ibid.*)

3. Mr. —, æt. 30. Oct. 6th, m., took teaspoonful of tinct. in water. In 15 m.

qualmish feeling in stomach, nearly amounting to sickness, passing off out of doors in about 1 h. Urinated much more frequently than usual for next 12 h., urine normal, and in ordinary amount each time. On 8th, dull aching over whole hepatic region, in all situations and postures, for 12 h.; no aggravation on pressure, but some in walking. 9th.—In e. boring oppressive headache in whole forehead, with general languor, lasting till he went to bed; no trace of it next m. No action of bowels from 7th to 10th; continued itching at anus, as from ascarides, worse when sitting in e. [Prover had no more symptoms from this time till the 20th; and those noticed by him after that date cannot reasonably be ascribed to the dose taken on the 6th.—EDS.] (*Ibid.*)

4. Dr. BERRIDGE took ℥j of tinct. in water; only effect noticed was a yellowness of fæces. (*Ibid.*)

II. *Poisonings.*—1. A young woman, æt. 25, drank dregs of some "chamomile tea." Soon complained of pain in belly from r. to l., just above navel (transverse colon); bowels then became relaxed, stools at first white, then putty-like; later, pretty severe vomiting, with griping, and great ineffectual desire for stool; coldness inside abdomen, passing downwards into legs as far as knees. Tongue coated white, with islands on it. Intense headache on vertex as from pressure from within, and feeling as if top of head were blown off. Vomiting continued till 2nd d., and pain in abdomen till 3rd d. (Dr. BURNETT, *Month. Hom. Rev.*, xxi, 408.)

ANTIMONIUM.

(Including *Ant. crudum*, the black sulphide (Sb_2S_3); *Ant. oxydatum*, antimonious oxide (SbO_3); *Ant. sulphuratum aureum*, the golden or penta-sulphide ($Sb_2S_3+Sb_2O_3$); and *Ant. sulphuratum rubrum*, mineral kermes ($2SbS_3+SbO_3$).

I. *Provings.*—1. HAHNEMANN. *Chronic Diseases*, Part II of original, Vol. of translation. Contains 471 symptoms from self and others obtained with antim. crudum.

2. *a.*—When kermes in doses of 4—8 grains is introduced into the digestive organs of healthy men, it provokes sometimes vomitings and sometimes alvine dejections, accompanied by malaise more or less considerable. Sometimes, however, it produces no appreciable derangement.

b. The golden sulphide is less active than kermes, manifesting properties analogous thereto when employed in double or triple doses. (RAYER, *Dict. de Med. et Chir. Prat.*, III, 15, 63.)

3. *a.* Dr. KARL MAYERHOFER took, in winter, for 2 successive d., every m. and n. $\frac{1}{16}$th grain of ant. sulph. aureum. His head lost its usual light and undisturbed feeling, much saliva and water came into mouth, taste bitter, sweetish, and flat; sleep full of dreams and head confused; feeling of tickling as from mucus in larynx and trachea.—3rd d., m., $\frac{1}{8}$ gr. All day confusion in sinciput, pressure in scrob. cordis and stomach, stool hard with much straining, followed by painful aching and full feeling about navel, oppressed breathing, heaviness and weariness in lower extremities, pulse normal.—4th d., $\frac{1}{4}$ gr. Hard, full breathing, fulness in bronchial tubes, semilateral headache, especially in l. temple, burning shooting sensation in whole l. side, especially in lumbar muscles, sleep with anxious dreams. M., nasal catarrh with oppressed breathing, pappy taste with slimy furred tongue,

more urine than usual, by d. tickling in larynx, with inability to expectorate the phlegm.—5th d., ¼ gr. Until midnight quiet sleep, then sudden waking with confused head and aching over forehead towards crown; fulness in stomach, aching and tensive feeling in throat, especially larynx, pappy taste, full bronchial tubes with hard breathing, thereafter soporous slumber without refreshment. M., heaviness of arms, boring tearing in arms and wrist-joints, especially aching tensive pain in l. shoulder-joint, swelling of fingers; stool easier than yesterday, fæces pappy but consistent, of bright colour, urinary secretion increased with great tensive and tickling sensation of the penis.—6th d., e., ¼ gr. Dreamful sleep, sudden awaking after midnight with great excitement and restlessness, genital parts uncommonly excited, thereafter light slumber.—7th d., m., ½ gr. Aching and tightness in bronchial tubes, feeling of anxiety, difficult breathing, diminished appetite, rheumatic pains in arm-joints, aching and heaviness in bones of forearms, tensive swollen feeling of fingers. Confused head in forehead, pressure in stomach, constant tenesmus at stool, then tensive painful abdomen, especially about navel, and a very painful twisting through bowels. Increased urinary secretion of reddish-brown colour, towards e. chilliness alternating with heat, pulse suppressed, small, next night very dreamful sleep. Next d. tense full belly, discharge of much flatus with sudden call to stool, when at first hard, thin, bright yellow, pappy fæces, then violent pains in bowels and rumbling about navel. Confused head caused by great straining from abdomen. Great sensitiveness in large intestine, and especially at anus.—Left off med. for 4 d.—12th d., e. ½ gr. Slept only 3 h., sudden waking with heavy confused head, pressure in stomach, difficult breathing, fulness in bronchiæ, restless tossing about, active cutaneous function with slight warmth and even slight perspiration all over body; pulse soft, urine increased, with tickling and twitching feeling in urethra. M., feeling of great weariness and prostration; appetite diminished, and almost loathing of food.—13th d., without med.—14th d., m., ½ gr. Alternate heat and chills, rheumatic pains of joints, little appetite, pappy stool.—15th, 16th, 17th d., every e., ½ gr. To the other symptoms there came at first accumulation of viscid phlegm in bronchial tubes and larynx, tensive drawing pain in groins, slight swelling of leg-joints, especially of knees, extraordinary sensitiveness of genitals, on 3rd d. reddish swelling behind r. ear, which when it subsided left redness and formation of scurf.—18th d., e., 1 gr. Dreamful sleep, with sudden waking after midnight with uncommonly increased gouty and rheumatic sufferings in the upper and lower extremities, tensive sensation in humeral and femoral muscles. Coryza and fluent catarrh with confused head, obstructed respiration and deranged appetite. 19th d., e., 2 gr. M., pulse 60, e., pulse 70. Other symptoms like those of yesterday, and also tensive pressive sensation in cervical vertebræ, nape and ribs, constipation with tenesmus and burning pains in anus. 20th d., e., 3 gr. Lively dreams and sudden waking after midnight with great restlessness, drawing, tensive rheumatic pains all over thorax and whole spinal column, hard and noisy breathing, with great secretion of phlegm. Increased urine of reddish-brown colour, from which the

antimony could be precipitated in the reguline state.—21st d., forenoon, 4 gr. Increased appetite, amounting to hunger, and an apparently general well feeling; then aching, boring, tearing toothache, pressure in scrob. cordis, constant drawing tearing pains in joints, increased secretion of phlegm mixed with blood, with sweetish taste. E., 5 gr. All night very restless, increased secretion of viscid mucus, painful immobility of l. arm, tensive rheumatic pains in hip-joints and inguinal region. Stool half firm, half soft. M., scraping feeling in throat, violent coryza and loss of smell, general chilliness and rigor down the whole spine, frequent expectoration of viscid mucus mixed with blood. Next n. was the most restless of all, constantly disturbed soporous slumber, the pressive headache always increased, anxiety and heaviness in præcordia, severe scraping pain in throat, especially larynx, and burning and heat in fauces. These symptoms lasted for 3 d. more or less. He left off the proving for 8 d.—After this he took, for 4 d., 1 gr. e. Restless, dreamful nights, rheumatic pains in all parts of the body, increased secretion of phlegm and urine, stools with and without tenesmus, appetite gone, with slight loathing.—5th d., e., 2 gr. Pulse unaltered, all former symptoms, but more severely; phlegm from throat fœtid, teeth coated with yellow stuff, taste pasty.—6th d., 4. p.m., 4 gr. Deep sleep with perspiration, itching on skin, especially about genitals and inside of thighs. Scrotum twitched strongly towards m., thereafter slight redness, and during d. there appeared a pustular dry eruption; constipation.—7th, 10 p.m., 6 gr. Dreamful sleep. Waking after midnight with dull headache. M., pasty taste in mouth. Pressure in throat as if a plug stuck there, increased mucous secretion and fulness in bronchial tubes, with full hard breathing. The itching and eruption on scrotum spread towards perinæum. Weakness of stomach, deranged digestion with loathing. Urine increased and dark red, containing traces of antimony. This condition lasted 2 d. He then took, at 11 p.m., 10 gr. Sleep full of dreams, frequent waking with very confused head, peculiar painful tension and dull feeling in cerebrum. M., stiff tensive pains in joints, mucous secretion of throat and nose increased, taste very flat, pasty, increased urine, and pappy reddish-yellow fæces. On both inner surfaces of thighs there came dry pustules, which itched and felt tense, and when walking the whole thigh was painful. These pustules lasted 3 weeks, when they dried up, scaled off, and disappeared, and during this time all the other symptoms gradually went off. Pulse little affected during whole proving.

b. Same took for three successive e., at bedtime, ¼ gr. well triturated of ant. sulph. rubrum. Sleep restless and full of dreams, head confused, pressure in scrob. cordis, weariness and want of power in limbs, tension and increased sensitiveness in joints, especially shoulders and knees,; tongue covered with pasty slimy fur, stomach empty; on 3rd d., increased feeling of warmth all over body, itching in inner surfaces of thighs and genitals where the pustules caused by the ant. sul. aur. had been. Breathing somewhat affected by viscid phlegm in trachea and bronchi. The next 2 d., took in e. 2 gr. Anxious dreams, m., heaviness and confusion of head, especially in cerebrum. Eyes weak, later on full of moisture, lips very dry, taste pasty. Increased

secretion of phlegm from trachea, with tickling of phlegm in larynx, and running from nose, chest oppressed, breathing full, pulse somewhat quickened and general warmth, rheumatic, drawing, tearing pains in joints, head confused amounting to painful pressure and heaviness, scrapy slimy feeling in throat, constipation; urine dark coloured, and more frequently passed. The next 4 d. 1 gr. every e. Febrile movements in and out of bed, which went along from spine, spreading to whole abdomen and extremities, and lasting about ½ h., followed by increased warmth all over body with some moisture of skin; pulse full, but soft, lungs sensitive, especially l., also tight feeling about heart. Respiration rather hard and noisy, secretion of mucus increased, especially out of bronchi and nose, mouth pasty, slimy, lips dry; joint pains sharper than before, urine increased, fæces pappy and reddish brown, itching about genitals, perinæum, and anus increased. After some d., chilliness alternating with heat or even sweat. The stools lost their pappy consistence and constipation ensued. All right at the end of 8 d. (*N. Z. f. hom. Klinik*, xix, 36.)

4. Boecker took, on 27th Jan., every h. 1 gr., in all 14 gr. On 28th, at 5 a.m., 1 gr.; at 7 a.m., 2 gr.; at 8 a.m., 1 gr.; at 10 a.m., 2 gr.; at 11 a.m., 2 gr.; at 12.2 p.m., 2 gr.; at 2 p.m., 2 gr.; at 3.5 p.m., 2 gr.; at 5, 6, 7, 8, 10, 11 p.m, each time 2 gr. No change in health; about 8 p.m., shortly before stool, some flatus discharged smelling strongly of sulphuretted hydrogen. Some epistaxis in the morning.—29th, at 5, 7, 9, 10, 11 a.m., 12, 1, 4, 5, 6, 7, 9, 10, 11, each time 2 gr. No symptoms.—30th, at 8, 10, 11 a.m., 12 n., 3, 4, 5, 6, 7, 10, 11 p.m., each time 2 gr. Some inodorous flatus, some epistaxis on washing.—31st, four times during forenoon, at 3, 4, 5, 6, 7, 10, 11 p.m., each time 3 gr. About 4.30 p.m., transient jerking like electric shocks through both ulnar nerves, especially in elbow-joint. Appetite rather better than usual. Stool softer than usual, more inodorous than usual. —1st Feb., at 6 and 8 a.m., 2 gr.; 10, 11 a.m., 12 n., 3, 4, 5, 6, 7, 10, 11, each time 3 gr. On washing, m., some drops of blood from nose; e., after supper, some flatus smelling of sulphuretted hydrogen. Stool at 11 p.m., at first consistent then soft.—2nd, 7 a.m., 3 gr.; 10, 11 a.m., 4 gr.; 12 n., 3 gr.; 3 p.m., 3 gr.; 4, 5, 6, 7, 10, 11 p.m., each time 4 gr. In afternoon, some inodorous flatus, at 7 p.m., flatus smelling of sulph. hydrog.—3rd, 5 a.m., 3 gr.; 7 a.m., 2 gr.; 9.30 a.m., 4 gr. At noon, when washing, some drops of blood from nose. Appetite recovered.—4th. Increased mucous secretion in throat and nose. Stool blackish-brown, consistent.—During the proving, the stools became regular every day, which was not the case usually. As the dose was increased, the quantity of solid constituents in the urine increased. The fire-resisting salts and the salts insoluble in water were increased. The quantity of sulphuric acid excreted was about double the normal. It follows from the results of the proving that all the organs and tissues which pass off their detritus through the urine perform this process more rapidly when this drug is taken. During the proving more carbonic acid was given off during respiration. (*Beiträge zur Heilk.*, ii, 93.)

5. Dr. J. C. Raymond took, each d. for several d., 300 pellets of

6th dil.* of ant. sulph. aur., without effect. On Aug. 10th, e., took powder of 2nd trit. Next d., p.m., heavy aching pain affecting vertex, felt only during motion; any jar makes it severe, and at a misstep it feels as if skull would be raised to relieve pressure on brain. Took another powder at 9 p.m. 12th.—Pressing in rectum, with burning smarting, for 2 h. after his stool. Some heat in urethra when passing urine, followed by smarting extending about an inch up. P.m., intolerable itching in bend of r. arm, with redness like scarlet rash, for 1 h. 13th.—Took powder of 3rd. Stool hard and lumpy, followed by pain and smarting in rectum, severe for 1 h., and felt for several h. when walking. 14th.—No symptoms. 15th.—Violent pulsative pains in vertex and forehead, with feeling as if skull would be lifted with every throb, for several h. In e. another powder of 3rd. 16th. —Smarting and pressing in rectum after stool. Hoarse at times during proving. At 9 p.m. another powder. 17th.—Stool delayed and hard. In e., sharp lancinating pains, frequently recurring, from r. vertex to internal angle of r. eye. Another powder. On 18th and 19th no stool; on 20th, 21st, and 22nd stool hard and difficult; smarting, pressing and throbbing in rectum afterwards. On 22nd took 300 pellets of 6th. 23rd.—Headache; pain constant and dull when at rest, throbbing and severe during motion, extending from r. vertex to back of r. ear. No stool. 24th.—Stool hard and lumpy. Dull headache, with fulness and pain in r. ear. 300 pellets of 6th in e. this d. and next. No symptoms on 25th: on 26th delayed, hard stool, with heat and pressure in rectum after passage. (Dr. NEIDHARD's provings, *Hahn. Monthly*, xvi, 649.)

6. Dr. F. R. MOORE took, June 1st, 10.30 p.m. a powder of 9th dil. In a few m. slight metallic styptic taste. Deep heavy sleep at n., several times partially broken by pain in head, most in r. frontal eminence. Did not feel well in m. till after getting up; and debility, tendency to tremor, &c., continued till afternoon. For some d. after felt unusually well (qy. reaction). On 10th and 11th, repeated dose at n., with same taste following and same influence on sleep. On Oct. 11th took same dose at 9 a.m. Same taste; but thereupon nausea, and inclination to vomit, continuing till after taking a cup of tea. On Nov. 28th same dose at 10 a.m. Taste as before, and 1 h. after sense of weight in stomach, with great nausea and almost irrepressible desire to vomit. Very excitable and disposed to ill-humour. About 1 feeling, with nausea, as if acid were in stomach. Repeated powder, with usual taste, and this time fulness and heaviness in head. After dinner stupid feeling, with strong tendency to sleep. Thirsty at tea-time (6 p.m.); at 10 dull heaviness and singing in forehead, with flushed face, ill-humour, and reckless sort of feeling. Sleepy until going to bed; then wakeful and restless, with aching in legs from knees to feet and paralysed feeling there; tingling and itching over face, thighs and hips, urging him to scratch. Next m. acid feeling in stomach and dulness in head. Between 12 and 1 another powder. Taste as before; sense as of acid fermentation in stomach; head

* Dr. Neidhard informs us that he has habitually employed the decimal scale of attenuation in his provings.—EDS.

became dizzy and oppressed as in catarrh, and mind sluggish, with singing on l. side of head. (*Ibid.*)

7. Dr. JORGENSON took, on March 15th, 11 a.m., 2 grains of 1st trit. At 1 p.m. tightness in head, with great restlessness and uneasiness; at 2 much nausea, with tearing pain in stomach, relieved by rest; at 3 pain intense, least motion aggravating, with salivation and flatulence; during perfect rest pain gradually subsided. On 16th thick white coating on tongue, sense of dryness in mouth but much secretion of saliva; intense weakness; disposition to stretch and yawn. Two last symptoms continued next d. Sore-throat and hard cough also came on, and lasted, with great salivation and much weakness, till 23rd. On that e. took 2 gr. of pure substance, and next d. woke with pressive pain in vertex; stooping or lifting anything would cause rush of blood to head and throbbing headache for ½ h. Immediately after rising soreness in throat, with much hacking cough and expectoration of mucus.* (*Ibid.*)

II. *Poisonings.*—1. LOHMEYER has observed the following effects of antimonial vapours on those employed in works where the ores of the metal are smelted :—

a. One workman, D. W—, after a long exposure to vapours, had oppression of chest and slight headache; oppression gradually increased to violent stitches, darting toward shoulders and back, accompanied by dry, painful, violent cough. Headache likewise increased to a stitching and burning, especially in occiput and nucha. The dry cough was at last accompanied by difficult expectoration: rattling and wheezing in air-passages on inspiration. At n. painful uneasiness soon increasing to complete loss of sleep: a short nap ended in a profuse distressing sweat, followed by great exhaustion. Patient was altogether prostrated, appetite impaired, abdomen distended from the commencement; frequent attacks of diarrhœa with pinching in abdomen, by which the food soon after being taken would pass off undigested, whilst the belly remained distended and tight. He had difficulty in passing urine, which was attended with urging and pain at neck of bladder and painful burning in urethra, from which a few drops of a liquid mucus were occasionally discharged. Urine had dark orange or reddish colour. A few pustules broke out on scrotum resembling those of smallpox; pains were felt in testicles, sexual desire was weakened and gradually became extinct even to impotence; seminal discharges and erections entirely ceased. Incipient atrophy of penis and testicles accompanied this loss of power.

b. G. H—, æt. 28, began to complain in the spring of 1839 of violent headache, soon accompanied by tearing in all limbs, violent stitches in chest, and cough. Anorexia, pain in abdomen, with diarrhœa, and a pustular eruption, first on throat, very thick, then on body, and very severe on genitals; urination difficult, with pains and by drops, with clap-like discharge from urethra; loss of sexual power; total impotence; penis shrivelled; testicles diminished in size. The pustular eruption at length kept him confined to the house.

c. J. F—, æt. 30, was exposed to same influences at various times

* Some spots of acne indurata disappeared from the face during this proving.

in 1837 and 1838. In 1837 had headache, tightness of chest, with stitches in it; shaking, dry cough; later the pustular eruption, confined to throat. In 1838, on being again exposed, he had headache, which he described as boring, oppression of chest, violent dry cough, anorexia, cutting pains in abdomen followed by diarrhœa. The pustular eruption again appeared on neck and arms, less on body, but on genitals to such an extent that he could not walk. Blennorrhœic symptoms of bladder and urethra; difficulty, occasional impossibility of passing urine; tearing in urethra and mucous discharge; at length impotence. Testicles diminished in size.

d. K. J—, æt. 30, had tensive headache and febrile drawing in back. On continuing more constantly at the work had tensive pain in forehead behind glabella, with lightning-like stitches through the back of head, which were transient, but the frontal pain lasted. Some pain in sacrum; general prostration with sleeplessness; anxious dreams, starting, and night sweat; anorexia, pain in belly, and occasional diarrhœa. Painful swellings of cervical glands, pustular eruptions in bend of joints of upper extremities, but especially on abdomen and genitals; pains in testicles; strangury; urine dark red, for 14 d. bloody, causing burning in urethra, when a whitish mucus was discharged. Loss of sexual power, diminished size of testicles, impotence. (He got ill after the cessation of these symptoms when he left off his work. It seems to have been a severe attack of intermittent fever, and probably had nothing to do with the ant.) (*Casper's Wochenschrift*, 1840.)

2. A sick woman, for whom her physician had prescribed tincture of antimony, took a large spoonful of it without vehicle; whence arose pustules on the fauces, and maculæ, and a red exanthem over the whole body, with some delirium. (GOHLIUS, *Med. Pract. Clin. et For.*, 1734.)

3. In a case of pneumonia treated by the white oxyde of antimony, in doses of 20—24 gr., there appeared on the 4th d. an eruption of small pimples, similar in their confluence to those I have had occasion to observe on the genitals as a consequence of the external use of tartar emetic. I have observed the same phenomenon in other cases of peripneumonia treated by the same preparation. (MICHEL, *Gaz. Méd.*, 1835, p. 310.)

III. *Experiments on Animals.*—1. *a.* HARTING says the only after-effects of 3 oz. of ant. sulph. aur. on horses and cows were that the fæces were brighter coloured and loose, the urine yellow coloured and increased.

b. HELLEFELD gave at 3 p.m. to a cat 15 grains in water. In 1 h. it vomited coloured material, but was otherwise well; soon afterwards it had a fluid stool and urinary discharge; this was repeated later, then it became quiet, sad, and could not eat. After 8 d. again ate with appetite.

c. MAYERHOFER gave to a strong young butcher's dog the 1st d. 1 gr. without apparent effect; next d. 2, and 3rd d. 3 gr. in divided doses. It ate a great deal and passed much urine and loose fæces. 4th d. 3 gr. in 3 doses. After the first dose in 1 h. vomited soup and much mucus, passed more urine, and had three stools of reddish-brown loose fæces. The next 4 d. it got daily 3 gr. in 3 doses. Appetite increased, urine more copious, 2—3 pappy, reddish stools containing unaltered ant. sulf. aur. 5th d. he got 3 gr., and had at n. 3 dirty light-brown, clayey stools. Belly felt unusually warm, and on hypogastrium towards genitals several discrete

pustules which formed scabs, they came and went off gradually. 6th d. 4 gr. in 4 doses. Several stools with tenesmus, sometimes slimy, sometimes only pappy. The next 14 d. 6 gr. daily. Appetite not diminished; every d. 2 to 3 pappy and sometimes thin, slimy, generally reddish stools, sometimes with, sometimes without tenesmus, and always very fetid. After this for some d. got no medicine, and the functions became regular. For 8 d. daily 8 gr. in 4 doses. The above symptoms recurred and much of the drug passed away unaltered. Then frequent hawking of phlegm came on, the phlegm came away with much retching as if it would vomit. Every d. the straw of its bed was quite wet through with the hawked up and vomited phlegm. Appetite sometimes greater, sometimes less; eyes dropping, and the pustules on the belly came and went. After 8 d. it got daily 12 gr. in 3 doses. It became thin, but ate more than usual. The above symptoms remained the same. On the 4th d. there were loud mucous râles in the throat, so that it seemed as if it must be choked by the constant cough and hawking until it brought up the phlegm. It ate as usual, had dirty greyish-blue, slimy stools, of the consistence of pus, but after some d. they were again pappy and of the colour of the drug. The extremities were painful when pressed or bent; the pustules itched, as it licked and gnawed at them. The stools were always fetid and it exhaled a bad smell from its body. Urine always increased. For 8 d. it had no more of the drug, but its state remained the same. After 8 d. more it got 4 gr. in the d., and soon afterwards vomited. It now got in the m. doses from 4 to 20 gr. for 8 d. The stools became thin and pappy, appetite diminished, and the mucus became more viscid, general restlessness came on, and it lay down first in one place then in another, dragged itself about weakly and cowed together. Twitchings and paralysis of the extremities ensued. Pulse small and compressible. Belly very sensitive to touch. Breathing gasping, often groaning, frequent retching and flow of mucus from nose, the region of stomach very painful to touch, trembling of whole body, immobility of eyes, paid no attention when called, and becoming generally paralysed it died. P.M.—Cerebrum much injected and partially softened, spinal cord normal. Fauces, trachea, and bronchial tubes full of frothy viscid phlegm, lungs slightly reddened, partly infiltrated, partly hepatised, of dark red colour, spongy in structure and full of viscid frothy mucus. Some grey tubercles on both upper lobes. Cavities of heart normal, but on the external walls of the aorta and pulmonary artery there were fibrous and polypous formations. Liver very much discoloured, dirty greyish brown, spotted, swollen, spongy, and full of dark blood. Spleen red and blue flecked, œsophagus full of frothy mucus and very brittle. Stomach very much enlarged, lax, and soft, external coat in some parts thickened, in others thinner; the lining mucous membrane quite smooth, as if swept out clean; exactly like the stomach in gastromalacia. All the bowels lax, much mucus and thin coloured fæces containing many worms, the blood-vessels of omentum and intestines very much injected. The bladder contained a little dark-coloured urine; in other respects all was nearly normal. (*N. Z. f. hom. Klinik*, xix, 27.)

2. RAYER introduced ℥ss of ant. crudum into cellular tissue of dog's back without effect. Fifteen gr. placed in peritoneal sac caused inflammation, and in 24 h. death, but without any peculiar symptoms. Moiroud says that, given to horses in doses of ℥ij—℥iv, it acts as an excitant, causing increased frequency of pulse and respiration, and softer stools. (PEREIRA, *op. cit.*)

3. Dr. SAIKOWSKY, of Moscow, has found (*Virchow's Archiv*, xxxiv, 78) that when animals are fed upon antimonic acid (½ to 1 grm. daily) or other preparation of the metal for 14—19 d., the liver, kidneys, and even the heart, undergo a fatty degeneration; also that there is a lessening of the amount of glycogen in the liver, and in some cases even a total disappearance of it. This has been confirmed by Professors Grohe and Mosley, who state that in the Duchy of Brunswick the peasantry give to the geese, when producing the famous fatty liver, a certain quantity of the white oxide of antim. every d. (H. C. WOOD, *op. cit.*)

ANTIMONIUM TARTARICUM.

Potassic-Antimonious tartrate, $2K(SbO)C_4H_4O_6,H_2O$. Tartar emetic.

1. FRIED. HAHNEMANN. In ½ h. nausea, followed by yawning, with great watering of both eyes, then vomiting. Sensation at scrob. cordis like cold water, at same time is faint, like to fall, then follows heat on head. Cold sweat. (*Archiv*, iii, 146. No information.)

2. GROSS. After ¼ h. stupefaction of head, as if bound up, with drowsiness, and tensive feeling in l. half of head. Soon, feeling as if cold ran through the veins. Chilly as if soused with cold water, with goose-skin on arms, and repeated yawning. On 1st n. dreams constantly about incendiary fires from which he often wishes to escape, the fire breaks out in all places where he goes to, and yet the house is not burnt down. 2nd n., he preaches without notes and sticks fast; this incident confuses and bothers him just like the former, a great portion of the n.

The following symptoms are without note of time:

Headache round about in sinciput and vertex with tension and pressure. On waking at n. always pain as if brain in l. half of forehead were pressed into a lump. Constriction of head. Tensive in-pressing pain in l. half of skull. Tension in temple as if pinched in, with stupefaction. As if head from both temples was pressed together with blunt instruments. Pressing in left temple. Long-continued, painful drawing pressure in r. temple. Painful drawing in r. temple going down to zygoma and upper jaw. Headache as if constricted, with drawing and digging, down to root of nose (afternoon). On r. frontal protuberance obtuse undulatory pressure. Obtuse boring as with a blunt instrument under r. frontal protuberance. In r. half of forehead all e. an acute pain with sensation as if the brain there were pressed into a hard heavy lump. Above and across root of nose a stupefying tension as if constricted with a band. Obtuse pressure above nose and l. eye. Obtuse pressure on l. zygoma. Painful drawing and at length obtuse pressure on l. zygoma. Eyes tired as if they would close. Inclination to shut the eyes tightly. Burning in eyes in e. as if he had been studying long by candle-light. Drawing up along r. side of lower jaw from chin. Tobacco not relished. Extraordinary appetite for apples and thirst for cold water; drowsy early in e., which is unusual. Eats dinner with appetite, but when nearly satisfied has occasionally a kind of loathing. Hiccuping eructation of air. First eructation, then several times belching up of a fluid (as if from food) which he swallows, after which a sourish taste and a scrapy feeling in throat remain. Flow of water into mouth without nausea, but with qualmish nasty taste. Nausea with inclination to vomit rises suddenly from umbilical and gastric regions in repeated attacks. A kind of qualmishness rises from stomach. Cutting in abdomen and feeling as if a stone lay across hypogastrium, with great nausea; after retching six times and feeling of diarrhœa without evacuation, vomiting (with great straining,

trembling in abdomen, and cowering together) first of food with sour taste, that remains for some time and is associated with a continued scrapy feeling in throat, then chilliness. then two diarrhœic stools, the last of which is like water. After vomiting, great exhaustion, weariness, and drowsiness, loathing at all ordinary food, pale pinched features, swimming dull eyes, but with appetite for cooling things, *e.g.* apple squash. In scrob. cordis a painful feeling as from incarcerated flatulence, late at n. flatus is discharged with relief. A stitch shoots downwards from stomach to l. side of abdomen and up again, pain there on expiration, and when touched. After dinner qualmish feeling in stomach for a considerable time. After the nausea feeling of emptiness in stomach. Cutting and pinching in abdomen as from flatulence. In abdomen repeated transient nausea like pinching, as if diarrhœa would come on. Violent cutting and twisting in abdomen and tearing downwards through the inguinal region and through the thighs into knees like labour-pains; at same time fine but violent stitches at the navel with nausea and water brash; immediately afterwards diarrhœa preceded by rumbling in abdomen. Must lie down and stretch himself on account of discomfort in epi- and hypo-gastrium, at last falls asleep (11 a.m.). Round about under short ribs acutely painful tension, so that he can hardly sit, but only lie, from incarcerated flatulence, which is discharged occasionally. Along with repeated nausea and pinching and cutting in abdomen, empty eructation and discharge of flatus with transient relief. A kind of strife in upper and lower abdomen between nausea and inclination to diarrhœa, in which first the one and then the other prevails, with occasionally empty eructation and inclination to a natural discharge of flatus. Pressure in hypogastrium and pain with cold horripilation, as if menses were coming on. Repeated urging to stool. After repeated urging, a stool, which when passing seems to him to be almost watery but is in reality only pappy. A second stool a few h. after the first. (Twice strong sneezing.) Anguish with tightness of chest, and warmth seems to come out of heart. Burning prickling in knees. Under l. knee on the external side a slow, regular, painful jerking, when at rest and when moving. Suddenly a transient aching prickling pain as from a blow over l. instep. E., in bed, on r. side itching and gnawing, so that he must scratch. In l. big toe sudden, regularly intermitting pulsating pain. Weak, uncomfortable, and prostrate. Great heaviness in legs and arms, so that she must let them fall down. Drawing here and there. Feels as if cold runs through blood-vessels. Tired and sleepy. Overcome by great exhaustion, warm feeling at heart, the arms fall down. Frequent violent yawning. Yawning and stretching limbs. In e., contrary to custom, he becomes sleepy so early that he can hardly keep awake, and after ½ h. he gets wide awake and remains so till late at n. He looks pale and wretched, and is so chilly when he goes into the open air that he shivers. Great general discomfort coming from abdomen; he groans and moans involuntarily, and restlessness drives him from his seat and makes him walk about. Anxious and restless. Feeling of anxiety and heat at heart with stronger beats; it seems as if he felt them in his head. (*Ibid.*)

3. Rückert. Immediately confusion of head like pressure in temples.

¼ h. Great throbbing in region of stomach. ½ h. Vomiting with headache and trembling of hands. 1 h. Trembling and drowsy, with tension in forehead, especially over l. eye. Belching up of milk and an acid fluid. Violent pressure in abdomen as from stones, as if full, worse when sitting, especially in a bent position, changing sometimes to pinching in umbilical region. 2 h. Eructation of a salt watery fluid. Nausea, vomiting. 3 h. On stooping, feeling in occiput as if something fell forwards. 4 h. Pressive pain downwards in sinciput to l. eye, a shooting with an inclination to close eyes. Pressure in forehead, especially in m. Sudden, violent, startling stich from abdomen through rectum. 9 h. Transient stitch in rectum. 1st d. Food tastes well and has some appetite, but can only take food into stomach gradually, it makes him feel better and relieves pressure in abdomen. In bed, e., shooting in knee and hip. About 6 p.m., great febrile rigor, then after supper great heat with drawing in occiput. 2nd d. Slight shooting in forehead. Violent, pressive tension in abdomen, especially over bladder, much increased about 6 p.m., lasting 6 d. Enormous quantity of flatulence, with rumbling in belly and slight pinching; its easy discharge relieves. Stitch-like pain in rectum. Greater urging to urinate, which causes burning in urethra. Wakes at n. with violent thirst and urging to urinate, when very little is passed. All forenoon continued shooting pain in posterior part of urethra. Towards e. feeling in chest, especially l. side, almost like a sore, in jerks, at same time a hopeless, desponding disposition. Slight twitching in l. calf. At 11 a.m. great drowsiness; when he sits still he falls asleep immediately, has immediately very vivid dreams, during which the train of thought he had been following goes on. About 12 midnight, wakes with great thirst and urging to urinate. Febrile rigor attended with heat until 8 p.m., wakes at n. with thirst and urging to urinate. From 2nd to 6th d. The urinary symptoms last uninterruptedly 4 d., increase at first, then gradually diminish in severity. 3rd d. Attacks of vertigo, with flickering before eyes. Heat increased by movement. Shooting in temples. For several successive m., immediately after waking, pressive and tensive pains, especially in forehead, relieved by washing in cold water. In forehead, dull pain changing into shooting, going into temple, increased by coughing. After dinner violent pinching and aching in abdomen, not relieved by stool at 3 p.m., lasting till 4 p.m. Tension in abdomen going towards bladder. A very acute shooting pain in lower part of bladder, he thinks the pain of vesical calculus must be like it. Increased burning in urethra after urinating. Fever, comes first at 8 p.m., chilliness with transient heats. A peculiar internal trembling. 4th d. Dull pain in forehead as from a blow on head. Burning in ears. Chapped lips on waking at n. Cutting in abdomen. 9 p.m. The urine, at first clear like water, makes a flour-like sediment, which mixes easily on moving the glass, and gives the whole a milky appearance. The urging to urinate and burning in urethra increase, little urine is passed, the last drops are bloody and attended by severe pain in bladder. Uncommon tightness of chest. Some fingers get dark yellow spots of large size, which last 2 d. There occur on hands some small red spots like fleabites, without pain, and go off after

2 h. Very restless sleep all n., she often wakes after anxious dreams with dryness of mouth and chapped lips. Pulse beats quickly and almost audibly, a general pulsation, which she thinks those about her must hear. About 6 p.m. fever like yesterday, with anorexia, afterwards increased pain in abdomen. 5th d. The urine has an inflammatory red appearance, and red bloody fibres form in it on standing. Cramp in calves, afternoon, which goes off on walking about. Fever, as on previous d. 6th d. Fever as on previous d.

The following are without note of time:—Indescribable headache. Heaviness of head. Shooting-like electric shocks in both inner canthi and pressure in eyes. Flickering before eyes, especially on rising from seat, several times in an h., of short duration, she seems to see through a thick veil, with vertigo (several d.). Disagreeable sensation in palate all the time. Appetite generally good, sometimes bad. Empty eructations. Great nausea with dislike to the accustomed milk and pinching in belly. Nausea, inclination to vomit after eating anything. When sitting fermentation in abdomen that changes to pinching and discharge of flatus (afternoon). The belly seems full of stones, though he has eaten nothing, and it does not feel hard to touch; a sensation like what occurs after long-continued sedentary work. The pain in abdomen causes great restlessness of body, with inclination to move some limbs or to change the position. The pain in abdomen is not violent, yet so severe as to cause great restlessness of disposition and disinclination to all work. Frequently a feeling of pulsation in abdomen. Pinching in belly with production of flatus. Sometimes the pressure in the abdomen when rising up and walking about is relieved by discharge of flatus, also when standing, but returns immediately when sitting, especially in a bent-forward position. Hard stool, one d. no stool. A quick peculiar burning irritation, somewhat like tickling, but not of a voluptuous character, yet extremely troublesome, relieved by nothing, extends, commencing from the region of the rectum through the urethra, to the glans penis, where the tickling is greatest (lasts uninterruptedly six or seven days and is the most annoying symptom). Violent tension in perinæum, especially when walking, with great urging to urinate (several d. uninterruptedly). The tips of fingers die away, feel dry and hard, several d. Feet go to sleep immediately after sitting down. The fever continues uninterruptedly in a dull way, but is much aggravated by quick and violent movement, especially on sitting down afterwards. Great laziness in limbs. Relaxation of whole body. Great prostration and laziness in body, he feels best when he sits still and does nothing. When sitting the symptoms are frequent, or they are caused by it. Constant stretching and yawning, forenoon. Restless sleep. Chilliness. Several forenoons severe chills. Afternoon, constant heat aggravated by slightest movement, it affects head chiefly (daily). Towards e. hopeless, desponding humour, with chilliness, pain in chest, and great drowsiness. All the time an uncommon, remarkable wild merriment, less noticed by herself than by others; towards e. this went off and was replaced by vexation, crossness, and anxious thoughts for the future; she thinks she shall remain permanently in this state. (*Ibid.*)

4. STAPF. In ¼ h., drowsiness, eyes closed involuntarily, he fell asleep with head erect (he was being carried), so hard to awake that he did not do so when his eyes were forced open, when the pupils were found to be contracted, at same time moderately warm hands and face and tranquil breathing; occasionally retching woke him up for a few m. (in a child 2 years old). In 3 h., audible movement of flatulence in stomach.

Without note of time :—Slight tearing, drawing pain in l. half of head from behind forwards. Head heavy and requires support behind. Occiput heavy, with anxious oppressed feeling. Slight attacks of headache in forehead. Pressive headache in middle of forehead above nose. Pressive headache on l. side of forehead, with pressure in eyes. Great pallor of face for 1 h. Burning and smarting of inner canthus of r. eye and redness of conjunctiva. Pressure in both eyes. Sudden stretching pain on upper part of r. eyeball. Tearing pain on l. side of root of tongue, observed when swallowing. Grey furred tongue. Salt taste in mouth. Empty eructation; it relieves pressure in stomach for a time. Great flow of water into mouth. He retches several times violently and profuse sweat comes on forehead, legs very tired, water flows out of mouth; afterwards weakness. Nausea causing a peculiarly disagreeable sensation in throat. Confusion of head with increasing nausea. Empty eructation relieves the nausea for a very short time. Excessive nausea with pressure in scrob. cordis. Nausea somewhat relieved by expulsion of flatus. As the nausea increases and slight retching comes on in throat, a spasmodic movement takes place in upper abdomen. Nausea with slight pressure in scrob. cordis, then frontal headache. The anxiety becomes greater as the nausea increases, at the same time there is a slight pressure and some heat in abdomen, in which there is a rumbling of flatulence. After violent pressure in stomach, retching. On drawing in the belly shooting pain below scrob. cordis. Up from scrob. cordis occasionally cutting sensation. Slight burning in stomach. Slight shooting tearing pains on a small spot in l. hypogastrium. The abdomen is distended and there is a gurgling in it, felt externally. Transient tearing pain in l. side of upper abdomen, often recurring. On drawing in abdomen a small spot in l. upper abdomen is painful. Rumbling in bowels soon after taking med. The pressure in abdomen sometimes becomes stronger and is directed towards rectum, and then there is quietly discharged boiling hot flatus, whereupon the pressure is relieved. Bright brownish-yellow diarrhœa. Before diarrhœa rumbling about in abdomen, which is not distended. The diarrhœa is very watery. Burning in anus after stool. Urine dark reddish brown, turbid and of fragrant odour. Urine turbid and dark at first, afterwards clearer. Slight tearing pain in anterior part of urethra. Violent tickling in middle of trachea causes short cough. Violent, rheumatic long-continued pain in whole l. side, repeatedly. Short, shooting-tearing pain, especially at lower part of r. side of back near r. hip. Rheumatic pains in and over l. hip. Just below l. hip transient rheumatic pain. Slight rheumatic feeling in l. pelvic bones. Rheumatic drawing in upper part of r. thigh. Violent rheumatic pain between l. calf and ankle, and at same time

rheumatic pains in furthest back lower r. molars. Rheumatic pain on outside of l. calf. Cold feet. On rising, and shortly before, rheumatic and bruised feeling in limbs. Weariness in legs. He rests his eyes with his hands like one quite overpowered by sleep, and wakes up in bad humour, *e. g.* when anyone looks at him he begins to howl. Absence of thirst. (*Ibid.*)

5. No more desire for tobacco. Frequent spasmodic yawning. Desire for juicy fruit. Violent sneezing five times; then pain deep in chest and œsophagus. Appetite for sour things. Stitches above pubes. Sensitiveness of the œsophagus so that unchewed morsels cause much pain. Stomach internally sensitive, he feels the morsel all through the œsophagus and even in the stomach. Sour eructation. On the back of l. hand when touching the little hairs fine severe pricks. Weariness in the knees. (HERING, *Archiv*, xiii, 2, 183. No information.)

6. *a.* Dr. MAYERHOFER dissolved 1 gr. crystallised tart. em. in 100 drops distilled water and took for 5 successive d. 1 dr. daily in a spoonful of water before going to bed without obtaining any symptoms. 6th d. Took 1 dr. 3 times a d. Sleep more dreamful than usual. Woke in m. with sinciput confused, relieved by rising. Taste dry and pasty, appetite good. 7th d. Took 3 dr. 3 times a d. Felt pressure in scrob. cordis and greater confusion of sinciput, taste pasty, appetite more than usual. N., sleep restless and dreamful. 8th d. Same dose as yesterday. M., head much confused, pressure in frontal region, heaviness and pressure in stomach with bitter eructation. Taste bitter, pasty, and appetite less. M. urine dark yellow, clear, no sediment; a cloudy sediment of bladder mucus soon formed, and next d. a voluminous sediment of pale red colour, and containing some earthy phosphates and free uric acid; acid reaction; sp. gr. 1018; got turbid by heat, but clear again on adding nitr. ac., and contained am. carb. The earthy phosphates were copious, as also phos. sod. and sulph. sod.; sod. chl. rather lessened. Uric acid free, but not much increased; urea increased. After eating bitter eructation and pressure in stomach, fulness and oppression of bronchial tubes, with hard anxious breathing. Pulse somewhat excited and lively. Chilly feeling with prostration in extremities. For last 3 d. constipation with distended abdomen. Sleep next n. very restless and dreamful. 9th d. Took 4 dr. 3 times a d. Very painful pressure in crown, and confused frontal region, at same time strong pulsation of frontal arteries, and increased heat of whole head as from congestion to head. Oppression and pressure in scrob. cordis with anxiety about heart; heart's beats small and unequal. Tight feeling in thorax with hard full breathing, increased secretion of viscid mucus from bronchi and trachea with audible mucous râles. Towards e. sour eructation, pressure in stomach, oppression and nausea, with irritation to vomit. Increased secretion of saliva. Urine pretty copious, and also two pappy stools. Urine dark, dirty yellow, slightly turbid, no sediment, acid; sp. gr. 1018. Grew turbid when heated, which was removed by nitr. ac.; contained carb. of amm. Earthy phosphates copious, sulphates increased; sod. chl. diminished, phos. sod. copious. Uric acid free, copious; nitr. of urea increased.

Next n. slept restlessly and had many dreams, confused head, tossed about much. Passed much urine. M., felt head very confused, and accompanied by obtuse pressure in frontal region. 10th d. Same dose as yesterday at three intervals. Symptoms of head, heart, and respiratory organs as yesterday. Appetite diminished, pressure in stomach and weight as if overloaded with food; bitter eructation, and after dinner constant inclination to vomit, with frequent belching of bitter bile. Taste bitter and pasty, great flow of water and saliva into mouth, appetite diminished, thirst increased. Frequently during d. horripilation, with slight retching, eructation, and constriction of œsophagus. Sometimes a chilliness going from within outwards, starting from the porsal vertebræ, and spreading all over abdomen and upper extremities. Slight cutting pains in belly, two semifluid stools. Urine pretty copious, like that of yesterday. Following n. sleep restless, dreamful, for long spells could not sleep. 11th d. Same dose at same time. Same symptoms as previous d., only head and stomach symptoms more severe; appetite diminished, thirst increased. After dinner violent pressure in stomach increasing to nausea, when much water and saliva ran into mouth, tasting very bitter. The mucous secretion from bronchi copious. Occasionally during d. recurred heat of all the body so that he broke out in profuse perspiration, which stood on chest in large drops. During d. two semifluid stools, stomach and liver painful to touch, abdomen rather distended. The stools contained much bilious matter. Urine in good quantity, like yesterday. Next n. was restless and dreamful. 12th d., m., 6 dr. In 1 h. violent pressure and weight in scrob. cordis, heat and restlessness of whole body, confused head, and nausea. Violent retching, and with great effort vomited viscid and watery phlegm after great flow of saliva and water into mouth; the vomited matter tasted bitter, and had a very acid reaction. Antimony was detected in the vomit. Taste pasty and bitter, appetite diminished, thirst increased. Urine copious, observedly little altered, sp. gr. 1016. During d. two semifluid stools of bright yellow colour and strong smell. Traces of ant. in stools. Omitted taking drug till 14th and 15th d., when he took each d. 16 drops in 4 doses. Sinciput very confused, tensive pressure and weight about frontal region. In scrob. cordis boring and pressure with full feeling in stomach, bitter eructation and pasty bitter taste, tongue dirty white and furred yellow, appetite diminished, thirst increased. Towards e. abdominal integuments somewhat tense and sensitive to touch, urging tenesmus to stool, but without result, urine very copious. Tearing drawing and weight in extremities with chilly feeling all over body from within outwards, no power to get warm, combined with great malaise. Breathing in e. fuller and harder with great precordial anxiety. Pulse quick and not uniform. When lying in bed was taken with a peculiar vertigo, was often sick, and had frequent eructation, loathing, and flow of water into mouth. Urine dark yellow, slightly turbid, no sediment, sour reaction, sp. gr. 1018, otherwise much the same as before. Next n. sleep restless and dreamful, and by next m. there were catarrhal symptoms in throat, and increased secretion of saliva. Next d. two semifluid stools of strong character and dark yellow colour; trace of

ant. in them. The e. urine was dark yellow, slightly turbid, no sediment, acid, sp. gr. 1021, no albumen ; much uric acid and urea.

b. Next d. dissolved 1 gr. ant. t. in 100 drops water, and took 6 drops three times a d. Very ill after second dose, sinciput confused, tension in crown, peculiar pressure on eyes as if eyeballs were quite heavy. Anxious pressive feeling in precordia, bitter eructation, pasty bitter taste and loathing were the precursors of violent nausea. With third dose had great flow of watery saliva into mouth, frequent hiccup and eructation, urging in throat and violent retching, always increasing until vomiting occurred with great effort ; phlegm and water were vomited. After a short time retching again came on and he vomited viscid phlegm and bile; matter vomited acid, and smelt sour. The attendant symptoms were general sweat upon chest, secretion of much bright-coloured urine, and later two liquid slimy bilious stools, with rumbling and urging in belly. Pulse small and contracted, respiration lively, and thirst great. At n. much tough phlegm secreted in throat causing cough, breathing oppressed, slight stitches in l. thorax on inspiration. N. very restless, full of dreams. Woke in m. with dull heavy head and great discomfort. Yesterday's urine was of bright yellow colour, clear, without sediment, acid, sp. gr. 1018 ; contained earthy phosphates in considerable quantity, sulphates increased, chl. of sodium normal, phosphate of soda copious. It contained traces of sulph. of ant. The n. urine was dark red, clear, without sediment, acid, sp. gr. 1020, uric acid and urea pretty copious. No traces of ant. Next m. urine dark yellow, rather turbid, acid, sp. gr. 1025 ; contained a very small quantity of albumen, uric acid and urea diminished. The thin liquid slimy stools of yesterday contained much biliary colouring matter, but very slight traces of ant. The matter vomited consisted of water, stomach mucus, and biliary colouring matter, was acid, and contained traces of sulph. of ant.

Felt for some d. a peculiar weakness of limbs, deranged digestion, and confused head, increased secretion of viscid mucous fluid from bronchi, and catarrhal symptoms. In abdomen slight cutting pains with semifluid, rather pappy stools. After some d. felt tiresome itching in various parts of skin, especially on inner surfaces of thighs, where small pimples appeared. Urine remained for some d. copious. It gradually returned to its normal condition. Only once could traces of albumen be discovered.

c. Several weeks after this he took 1 gr. of crystallised ant. tart. at once in 1 oz. distilled water. In 10 m. felt pressure and heaviness in scrob. cordis, anxious breathing, and nausea ; in 15 m. confused sinciput with sudden congestion of head, flow of water and saliva into mouth, quickened fuller breathing with full quick pulse, anxiety, loss of hearing and sight, weakness and weariness of limbs ; after ½ h. violent sickness, cold coming over him, pale face, loathing, frequent retching, constriction of throat, and finally, after great straining of chest and abdomen with sweat of anxiety, vomiting of watery viscid slime, then of pappy masses of food, and finally of a slimy bilious-coloured bitter fluid. The vomited matter smelt and reacted acid. Then passed much pale urine. After some h. two semi-liquid stools.

After this felt very weak and prostrated, fell asleep tired out and awoke in profuse perspiration. The ejected matter contained ant. The urine passed after vomiting was of bright yellow colour and sp. gr. 1016, but showed nothing abnormal. The urine passed next. m. was very dark yellow, sp. gr. 1020, and resembled inflammatory urine. (*Heller's Archiv. f. phys. u. path. Chemie u. Mikroscopie*, III Jahrgang, 1846, pp. 111—124.)

7. Dr. DE MOOR took gr. ¼, and experienced flow of tasteless, clear water into mouth, running out in great quantity, with retching and straining that brought up nothing beyond a little clear mucus; eructations, sometimes tasteless, sometimes nauseous; indescribable malaise in region of stomach and abdomen, on touching parts gently pain increases in stomach but in abdomen is relieved; dull belly-ache, with slight horripilation and goose-skin; easy expectoration of a good deal of sweetish, transparent mucus; frequent yawning; slight chills, with drowsiness and weakness. (Allen's *Encyclopædia*, vol. i, from *Rev. de la Mat. Med. Spec.*, v, 436.)

8. *a.*—Following the example of Dr. Mayerhofer, I began, Sept. 1st, 1866, with 1 milligramme at 8 a.m., pulse being 73. No effect. At 3.15, pulse 71, took 2 mlgrms. After about ¾ h. felt rather uncomfortable for 10 m., pulse rose to 72 and 73, after subsiding of discomfort returning to 71. On 2nd, at 8 a.m. took 3 mlgrms. After 45 m. some discomfort, disappearing after 12 m. On 3rd, took at same h. 4 mlgrms.; pulse 72. After 40 m. slight headache, nausea, and very acute sticking pain in epigastrium, disappearing in ¼ h. Pulse 74; in ½ h. 70, in another ½ h. 68. Appetite at noon diminished. At 3 p.m., pulse 73, injected ¼ c.cm. of a strong solution (= ½ cgm.) into l. thigh, pulse 73. After 5 m. vivid redness and burning pain at point of injection, relieved by cold compresses; pulse 75. 10 m. after violent heat, headache, nausea, weakness, gradually increasing, till after 10 m. more sweat broke out; pulse 79. Much exhausted; felt great need of rest. Pulse after 15 m. 72, after another ¼ h. 67. In e. took very little food, and then felt constant burning in throat, swallowing also was difficult, anorexia, increased thirst, sleep broken. 4th.—On waking slight headache in vertex, and little appetite for breakfast. Took about 8 mlgrms. of ant. tart.; pulse 71. After 38 m. came first symptoms of discomfort, soon disappearing, but 10 m. later returning with increased violence. Very disagreeable pressure with anxiety in scrob. cordis, which was distended, and very sensitive to touch, which caused a shooting; constant recurrence of yawnings, eructations, and rumbling in abdomen; alternations of chill and heat; feeling of coldness in hands and feet; pulse 74. After 15 m. this condition entirely disappeared, and gave place to weakness, weariness, and prostration of limbs, so that he could hardly rise from his chair; pulse 70. Nausea continued all d., with disagreeable taste in mouth and copious secretion of saliva. Ate scarcely anything all d. Persisting weakness sent him to bed earlier than usual. 5th.—Rose with confused head and weakness of limbs, otherwise well. At 8 took 1 centigramme of ant. t.; pulse 70. After ½ h. nausea, yawning, eructations, rumbling, pain and pressure in epigastric region, accele-

rated respiration (20), headache, burning in throat, dysphagia, accumulation of saliva in mouth, chilliness, weakness, and retching; pulse 75. These symptoms gradually diminished, and in ½ h. only dulness of head and weakness remained; pulse 69. There was great aversion to all kinds of food, and scarcely had some soup (swallowing of which was very painful) been taken at noon when most violent retching came on, but without vomiting. A disagreeable taste in mouth obliged him to drink much cold water all d., which afforded some relief to this and to dysphagia. Weariness caused early retirement, and sleep was good. Next d. not much appetite, epigastric region felt painful; headache persisted, but only to slight degree. Dysphagia considerably relieved.

b. On 8th, feeling perfectly well, took 1 cgrm. at 8 a.m.; pulse 74. After 30 m. felt first indications of nausea; pulse 79. With increasing nausea pulse rose to 84: there was violent retching, chilliness, perspiration, and vomiting of some of his breakfast; pulse 88. With increasing weakness and diminution of nausea pulse fell to 71, and ½ h. later to 67. At noon most intense aversion to food, sight of which causes qualmishness. During d. weakness, headache, and pain in abdomen, latter increased in severity by slightest movement. At n. slept little and very uneasily. 9th.—Woke with confused head and burning in œsophagus; at breakfast little appetite; pulse 69. Took 12 mlgrms. After 34 m. nausea, epigastric region swollen and very painful; pulse 72. These symptoms disappeared, but returned in greater violence after 5 m., with metallic taste, salivation, burning in throat, coldness of extremities, retching, chilliness, sweat; pulse 77. Drank cold water: pulse fell to 72, but soon rose to 79. Symptoms disappeared after 1½ h.; pulse 72; only weakness, confusion of head, and pain in œsophagus remained. After 1¼ h. counted 65 weak beats of heart. Through d. copious saliva and no appetite. On following days weak and prostrated; eyes surrounded by blue rings, and sunken; headache absent only for short periods; pulse 69 and 70.

c. Dec. 12th, injected 1 cgm. in solution into a superficial vein in l. forearm. He had scarcely emptied syringe when he experienced raging headache, saw sparks of fire, had burning heat in face and considerable pressure in brain; at same time violent precordial anxiety. Dyspnœa followed, all became black before eyes, he was so giddy that he was obliged to sit down; vomited green masses with great effort. Very free hæmorrhage from seat of injection, requiring persistent compression to stop it. Through d. felt weak, as from severe illness. 13th.—Headache and pain in stomach continued; took 7 mlgrms., after which there was nausea but no vomiting. Pulse rose within 34 m. from 75 to 79, and 1 h. later fell to 70. Little appetite; slight diarrhœic stools.

d. On 14th injected about 1¼ cgrms. into l. forearm; pulse 68. Immediately violent burning at point of injection, which looked very red. Face became hot; violent headache in vertex and pressure in brain, and very anxious sensation in pit of stomach, nausea, retching, chilliness, and after 25 m. vomiting of green masses, with outbreak of copious perspiration. Pulse 80, very small. The whole d. very weak and unfit for any effort. On two following d. headache continued,

with sensitiveness in epigastrium, complete loss of appetite, and diminished digestive power. 17th.—At 7.15 a.m. took 1¼ cgrm.; pulse 72. In ½ h. symptoms previously observed returned; pulse 83. Headache and weariness lasted through d. Sleep at n. short, restless; some diarrhœa.

e. In spite of unpleasant remembrance of former injection into vein, he repeated it on 18th, with ¾ cgrm. Immediately frightful headache, heat of face, vision of sparks, very anxious sensation in stomach,—in short, same symptoms as after former injection. Retching without vomiting. Inflammation of the spot where injection was performed. "On this d. I examined my urine with nitric acid and microscopically. After the acid there was slight turbidity, and the microscope showed desquamated epithelium of the uriniferous tubes. This led me to discontinue further experiments on myself." Turbidity of urine lasted 2 d.; pain in stomach and head, and dysphagia, disappeared after 3 d., and appetite returned; but even after 2 months there were frequently recurring digestive troubles. During proving N. lost 7 lb. in weight. (A. Nobiling, *Zeitschrift für Biologie*, Munich, 1868, iv, 42—46.)

9. *a.* Being in good health, pulse 64, took at 8 a.m., fasting, 5 mlgrms. of tart. em. in water. Dose was repeated for 5 d. without perceptible effect. On 6th d., at 4 p.m., respiration seemed a little less free; but feeling no other effects, and appetite continuing good, took about 9 p.m. a dose of 1 cgrm. The n. was restless, sleep interrupted by a fatiguing heat; felt necessitated to drink several times; respiration slightly impeded. On rising, general uneasiness; weariness similar to what follows a febrile fit; mouth clammy. At 8 a.m. 1 cgrm. No appetite for breakfast. All d. in same state: about 5 p.m. greater uneasiness, especially about epigastric region; nausea; desire to vomit but without result; respiration more impeded; short dry cough, pretty frequent; great thirst: heat in head; white tongue; drinks always appear too sweet; clammy mouth; two loose evacuations during d.; palpitation; bruised feeling and general weariness, compelling retirement to rest at 8. Ear applied to chest gave evidence of nothing abnormal, save that respiration appeared much too rough. At 9 p.m. took 5 mlgrms. Agitated sleep, difficult respiration, feeling of pressure on chest dnring sleep. At 5 a.m. wakened by violent rigor, lasting 20 m., and followed by heat; pulse, which had hitherto been little affected, increased to 78, was full and strong; skin hot; face red; thirst urgent; heat in head; pretty strong palpitation; slight burning at stomach, fulness, and inclination to vomit; respiration very much impeded, with feeling of pressure and constriction of chest; cough frequent, and a little moister; on auscultation, respiration appeared rougher than on previous e., and deep inspiration was accompanied by slight pain under l. nipple. N. very agitated; disagreeable dreams, even nightmare. Took no more medicine. Continued much the same till e. of 10th d., when pulse was 72; respiration somewhat less difficult; cough the same; hardly any pain in side; great thirst; much uneasiness; n. rather less restless. On 11th d., a little less roughness in breathing (on

auscultation); cessation of pain; skin still hot; thirst less; uneasiness diminished; appetite in part returned; respiration still obstructed; cough a little less; n. more tranquil. The symptoms continued to diminish, so that by 18th d. there remained nothing but slight cough, which persisted some time longer.

b. Three months later, during 8 d. took each m. 5 mlgrms. without feeling anything. The 9th d., at 8 p.m., took 1 cgrm. The n. was somewhat disturbed, and the respiration rather less free. A little weariness on rising next m.; took another cgrm. During d. some uneasiness; mouth clammy; little appetite; breathing impeded. About 10 p.m. 5 mlgrms.; sleep very disturbed, and towards m. uneasiness, especially at epigastrium; some nausea; loss of appetite; respiration impeded; a watery stool at n.; great fatigue; urgent thirst. From m. of 8th d. cough appeared, and went on increasing; it is short, frequent, and painful; auscultation gave no results. At 9 a.m. 1 cgrm. In course of d. rigor, lasting ½ h., with burning in head and beating of heart; thirst; inclination to vomit; pulse 80, strong; skin hot; cough dry and painful; considerable difficulty of respiration; sensation of weight on chest; auscultation finds rough respiratory sounds; general bruised feeling. This state continued all d. and n., latter disturbed by strange and fatiguing dreams. Two watery stools in the 24 h. On following d. symptoms declined, but more slowly than first time, so that by 25th d. health was not entirely restored. (MOLIN, *Des Spécifiques en Médecine*, Paris, 1847.)

c. On July 5th, 1855, began to take 2 drops of 6th m. and e. During 10 d. felt nothing abnormal. From 16th onwards heat of stomach after dinner, which in 5 d. more came to last all d. On 23rd increased dose to 4 drs. Now difficulty in getting to sleep, sleep disturbed; mouth pasty and bitter; lively thirst, but after drinking precordial uneasiness. After bad n., had on 24th no appetite for breakfast and malaise all d., with precordial uneasiness after ingestion of either solids or liquids. After dinner, some griping below navel, followed by loose and copious stool. Similar symptoms continued up to 26th, when there was added heat at anus after greenish stool; headache; heaviness over eyes; nausea; and ineffectual efforts to vomit. In e., weight on chest and dyspnœa; also bad humour, all noise about him seeming intolerable. Pulse 68. 27th.—Was awoke this m. at 2 by colic, followed by a liquid evacuation of greenish colour; burning pain at anus during and after evacuation; stomach distended and sensitive to touch. Intense thirst. Headache is more severe and head very confused. Eyes feel larger and swollen. Breathing short, anxious, and very difficult. Now and then a little dry cough. Pulse 72, and full. Rose at 10; had cramps in legs, and constant desire to stretch; no appetite, but forced myself to eat. Scarcely was meal over but sickness began, increasing till I vomited. I became very pale and felt stifled; I had also gastric pains, to which I am subject. Am obliged to stop taking medicine. Same state of suffering continued all d., and I only took broth and wine now and then. Restless at n., and sleep bad. 28th.—At 4 a.m. a motion, semi-liquid. I can take no breakfast on account of the sick-

ness, which still continues. I suffer much pain in legs, and my stomach is very painful, although these are chronic pains to which I am subject. My breathing is oppressed and my face pale. I ate a little at mid-day and also in the e., but without relish. I have great thirst, with a desire for strong liquors and acids. Slept pretty well. 29th.—Awoke feeling sick; head confused; conjunctiva rather yellow; complexion not so pale. After breakfast bowels were relaxed. After dinner another motion, of a greenish colour. I felt very tired, and a strong inclination to go to bed. At n. had troublesome dreams and nightmare. 30th.—Still feel very tired, with a great desire to stretch myself. Pulse 64. My face has resumed its natural colour. After breakfast had a semi-liquid motion. The gastralgic symptoms continue. Head and chest become comfortable. I dine with a good appetite; and I sleep well. 31st.—All symptoms are abating, and on Aug. 2nd I find myself in my usual state of health.

d. June 3rd.—In good health. I commence to take every d. a drop of the 18th dil. m. and e. 11th.—No symptoms having occurred I double the dose (2 drops). 15th.—Sleep was rather uneasy in the n. 16th.—In m., and at noon, the bowels were relaxed. I have general uneasiness. 21st.—Nothing. I take 4 drops m. and e. 22nd.—Uneasy night; awoke frequently. I have not much appetite. Stomach feels uncomfortable, and I have some pain in bowels. For last 4 d., motions have been soft. Head a little confused. 26th.—I take 6 drops m. and e. 27th.—Did not sleep well; had several emissions of urine. Thirsty; stomach very uncomfortable; no appetite. At 12 I took breakfast, which I enjoyed. After that had pains in bowels and a soft motion. Then felt easier, and was pretty well rest of d. Had strong palpitations in n. which awoke me. Head felt heavy. Was very hot; a dry heat, so disagreeable that I got up. Extreme thirst. 28th.—Head still heavy; feel fatigued. After breakfast, slight pains in bowels; head heavy; sleepy. Fell asleep in my chair, and awoke in 20 m. with palpitation. Dined without appetite and was afterwards seized with colic, followed by an abundant liquid motion, accompanied by pain in bowels and back. 29th.—Awoke at 1 a.m. with strong palpitations. Head uneasy, but not aching. Felt irritable and wished to rise. The uneasiness continued all n. In m. I greatly desired some cold drink. General lassitude; pale face; no appetite. At noon, breakfasted in pain. An hour after, I had colic and an action of the bowels. Feel fatigued; have pain in back, and a wish to stand up; also cramps in the legs. I have very great fatigue; head is still heavy; no appetite. At n. uneasy, but not so much so as on the preceding one; palpitations are less violent. 30th.—After breakfast, an abundant liquid motion, but no colic. Breathing is oppressed; it requires an effort to take an inspiration. Heart beats more quickly. Very little appetite for dinner; feel sick; have great thirst. Feel so uncomfortable that I am compelled to go to bed. At midnight, I awake with palpitation; pain at base of r. lung, increased by taking a long breath; respiration difficult and incomplete. Dry cough. Much thirst. Pulse 85. About 4 a.m. slept quietly and perspired profusely.

July 1st.—No appetite; feel sick; pain in side is less. After soup taken at mid-day another motion with colic. Head is hot; skin dry. Pulse continues more frequent. I am ill-tempered. Could take no dinner. At 9 p.m. griping pains; also felt a want of food. Took a little wine with sugar, and two biscuits. Then I went to bed quite exhausted. 2nd.—Sleep has been disturbed. At 2 a.m., awoke with the pain in my side, which was worse; to lie on that side was so distressing that I had to change my position. The difficulty of breathing increases the pain, and respiration is imperfect. The lungs feel full (distended); dry and frequent cough. Clothes feel too tight; obliged to unbutton my shirt collar. Determination of blood to head; palpitation on left side. Skin is dry and very hot. Face much altered. Great thirst; nausea. In bed I am very uncomfortable. I leave off the medicine, but symptoms continue. I have a bitter taste and headache. At noon I eat a little. Headache is diminishing; skin not so dry. I lay down and slept 4 h. Headache then much less. For dinner, broth and meat. Afterwards, a copious stool. I am excessively fatigued, and have pain in the back. At n. I am very restless, and have much pain, but no palpitation; stomach more comfortable. 3rd.—I eat with a relish. Lungs are more free; pain in the side is less; headache is diminishing. No action of bowels to-day. A pretty good n. 4th.—When I awake I am almost free from pain; headache gone. Still some discomfort of stomach, but I eat with relish. Pain in side and breathing not yet quite right. No motion. Good n. 5th.—Stomach is all right; slight uneasiness in side. Appetite good. Bowels all right. 10th.—All the symptoms are gone; I am in perfect health.

I think I may reasonably conclude that infinitesimal doses, on both man and animals,* produce pathogenetic effects, and that these pathological changes may be compared to spontaneously developed diseases. (*Compte rendu du Congrès Méd. Hom. de Bruxelles*, 1856.)

10. Dr. Jankovich, of Ofen, on 14th July, 1841, took a dose of the following mixture every hour: Tartarised antimony, 12 gr. dissolved in 3 drachms of distilled water, of mucilage and opiate syrup each ½ oz. Dr. J. took 8 gr. of A. t. in 5 doses, or 1½ gr. per hour, commencing at 11 a.m. Shortly after the first dose he suffered from giddiness and a feeling of illness; after the second a shivering all over, cold perspiration, nausea, and retching; after the third, a painful feeling in pit of stomach, with vomiting of much mucus and bile; uneasiness in bowels, but without pain or purging; excessive and constant perspiration; increased flow of saliva, and thirst, which he was compelled to satisfy by taking small quantities of cold water. He was so depressed and weak that he could not rise from his seat. The fourth dose was followed by increased illness, vomiting, and purging. After the fifth such apathy and disgust that he felt quite ready to die. His repugnance to any more doses was such that he found it impossible to continue it. He took some broth, which, however, he speedily vomited; this was followed by a further action on the bowels, nausea, perspiration, and great depression, lasting until n. He slept calmly,

* See III, 7.

and the symptoms had disappeared next d. (*Med. Jahrb. des österr. Staates*, 1842, p. 49.)

11. Dr. WETZLER, of Augsburg, dissolved 12 grains of A. t. in 6 oz. of water, and took a tablespoonful (1 grain) every hour from 5 a.m. till 3 p.m. The pulse was slightly increased. In 1½ h. there was nausea with vomiting of a mucous fluid, but this ceased and did not return; there was then abundant perspiration for 12 m. The tongue was dry and brownish yellow. In 5 h. there was intense thirst. In 7 h. complete loss of appetite, fulness of head, heat of forehead, great depression, and a feeling of general illness. At 3 p.m. could take no more antimonial mixture. In a few d. he recovered. A fortnight afterwards he repeated the experiment with like results, except that, from a feeling of the greatest loathing, he could only take the antimonial solution for 7 h. In 14 d. more, he repeated the experiment again, and the solution was for taken 10½ h. Violent vomiting followed, and on this occasion the illness was more severe. Dr. Wetzler felt he could not continue his experiments. (*N. Jahrb. d. teutsch. M. u. Ch.*, xii, 1.)

12. To a strong young man I gave tart. em. in ½ gr. doses every 10 m. for nearly 7 h., inducing great nausea and vomiting, with profuse perspiration; but during the whole time his temperature remained remarkably constant, varying not more than 0·4° Fahr. (RINGER, *op. cit.*)

13. Dr. SHARP took a drop of 1st dil. in ʒj of water, pulse being 72, and resp. 18. During next h. pulse varied from 66 to 74; but breathing, rising at 4th m. to 20, fell through next 24 m. to 10, when it consisted of deep uncomfortable sighings. During 14 m. more it continued to fall until it became only 6 in the m.: it then rose, and by end of h. was 18 as at first. (*Essays on Medicine*, p. 726.)

14. ACKERMANN selected three healthy young men, æt. 21—23, and made 3 sets of experiments on each, with 6 d. intervening. On d. before each experiment, subject was kept on regulated diet; on d. itself nothing was taken save cup of coffee in m. Subject was weighed after bowels and bladder had been emptied, and then went to bed and remained tranquilly in it for 9 h. Every 5 m. pulse and resp. were counted, and temp. of mouth and hands determined. After remaining in bed 1 h., a certain quantity of tart. em. was given, usually 4 cgrms.; and this dose, doubled or halved according to its slight or severe effect, was repeated. In 1 h. after drug had been taken bladder was emptied, and from this time urine was considered to be under the medicinal influence. The following were the results:

a. Pulse.—For a variable time, according to the individual or dose (length of time being inversely as the dose), no effect was produced. Then commenced acceleration of the pulse; and at the same time, or a few m. after, nausea was perceived. These two symptoms increased together, the former reaching its maximum with vomiting, then declining slightly, then remaining stationary for a time, and afterwards undergoing changes. The quickening of the pulse could be taken as the measure of the nausea, varying in amount with it, before vomiting came on. Amount of nausea and rapidity of pulse rose as the dose of

A. t. was increased. The mean maximum of the rise (in three men) was 42 per m. Never during the nausea did the pulse, even after vomiting, sink to the normal standard. The pulse was weaker as well as quicker, that is, the wave of blood was smaller as felt by the finger. A diminution in the strength and extent of the heart's impulse was felt at the same time. The frequency and strength of the pulse were therefore in an inverse ratio. When the nausea ceased the pulse fell somewhat, but still remained frequent for a time, then increased again, and then finally declined. The second was never equal to the primary rise, it was greater and earlier in proportion to the dose. The size of the pulse was greater than in the primary rise, and the heart's action was increased. A fall in the pulse ratio to below normal was never seen by Ackermann during first 8 h. after a small or medium dose of A. t. The weakness of the pulse, *i.e.* diminution of lateral pressure, was proved by Lenz by hæmadynamometric researches. The frequency of the pulse was referred to a weakened or paralytic condition of the vagus.

b. Temperature.—From 5 to 30 m. after quickening of pulse and nausea the temperature of the hand diminished. It bore a relation to the rapidity of pulse and nausea, was in proportion to cyanosis of hands and face, and gave the patient a sensation of general coldness. It was in proportion to the dose of A. t. Cyanosis disappeared, and temperature of hand usually rose (even to above normal) after cessation of nausea and vomiting, and about the time of the secondary rising of the pulse, when impulse of heart and size of pulse were alike increased. The temperature of the mouth was *not* lowered ; it was either normal, or varied very slightly until the secondary rising of the pulse, when it increased about 1° F. on an average.

c. Respirations.—The respirations at first were quickened, lessened after the nausea was over to normal, and rose somewhat with secondary rising of the pulse.

d. Excretions and *Secretions.*—With the nausea there was increase in the saliva, which was greatest shortly before vomiting. It came mostly from the parotid, and caused frequent deglutition. Referred to irritation of glosso-pharyngeal nerve, the gustatory branches of the fifth or the vagus, or, probably, due to nervous and vascular paralysis. The total excretions of the body were augmented according to the dose. The "insensible perspiration" (skin and lungs) was increased by one half in some cases, in others doubled or more than doubled. These included clammy sweats on forehead during nausea, perspiration during vomiting, and increased pulmonary exhalation. The quantity of vomited matters depended on largeness of the dose. There was purging in some cases. The water of the urine was lessened, in proportion to the dose, and to the amount of the other excretions. The quantity of urea was increased on an average by $\frac{1}{8}$th or even $\frac{1}{4}$th, almost constantly in proportion to the dose. The quantity of chloride of sodium was less, especially when diarrhœa occurred. Pigment and uric acid increased generally, and the amount of free acidity was variable.

e. Summing up of Ackermann's results :

(1) Tartar emetic quickens the action of the heart, possibly by partially paralysing the vagus.

(2) It weakens at first the force of the heart from an uncertain cause ; subsequently, when its effects are passing off, the heart's action augments in force.

(3) It produces at first general capillary and venous hyperæmia, on account of the weakened heart, and afterwards general relaxation of the vessels, when the effects are passing off, and when the heart's action increases.

(4) It causes increased action of the skin during the hyperæmia (cold and clammy sweats) and during the after period of increased action (warm sweating).

(5) It lowers during the first period the temperature of extreme parts, and subsequently causes a moderate rise of temperature over the normal amount.

(6) It increases the number of respirations, and probably augments the pulmonary exhalations.

(7) It augments the gastric and intestinal secretions, producing vomiting and sometimes purging.

(8) It augments the flow of parotid secretion, whether from irritation (direct or reflected) or paralysis of the nerves is uncertain.

(9) It lessens the urinary water and chloride of sodium, on account of the increased discharges from the stomach, intestines, skin, and lungs.

(10) It augments the urea and uric acid from heightened metamorphosis.

(11) On the whole, in spite of the lessening of the urinary water, it augments the total excretions, even when there is no vomiting or purging, and this is produced especially by its great action on the skin. (*Brit. and For. Med.-Chir. Review*, xxiii, 346.)

15. 6th April, from 7.45 to 11, took 5 tablespoonfuls of a solution of ant. t. gram. 0·100 in 10 tablespoonfuls water ; at 11 p.m. and 12.30 a.m., 1 tablespoonful. After 3 tablespoonfuls slight nausea. After the 4th tablespoonful occasional eructation. After the 5th tablespoonful at 11 a.m. a normal stool, accompanied by horripilation through skin, pinching pain below navel, nausea which frequently recurred. During the pain felt exhausted and weak, when the pain was gone felt quite well, only must spit frequently. App. diminished. After eating, rumbling in bowels. At 2.20 and 3.10 p.m., 1 tablespoonful ; at 3.30, rumbling in bowels. At 4 and 5 p.m., 1 tablespoonful ; at 10.30 p.m. a second stool. Took 2 more doses without any effect.—7th. 9, 10, 11 a.m., 3, 4, 4.35, 5 p.m., 1 tablespoonful of a sol. of 0·150 gr. to 5 oz. water ; 5.40, 6.30, 9.30, 11 p.m., 2 tablespoonfuls of a sol. of 0·200 gr. to 5 oz. water ; no stool, no other symptoms.—8th. Ant. t. gram. 0·200. in 5 oz. water ; 7.33, 8.35, 9.35, 10.35, 11.30 a.m., 12 noon, 1 tablespoonful. Ant. t. gram. 0·220. in 5 oz. water ; 3.40, 4.45, 5.25, 6.5, 10.30, 1 tablespoonful. M., some tight feeling in chest with frequent cough, expectoration of some mucus. Discharge of fœtid flatus. At 1.39 p.m., aching and pinching pains in belly lasting 2 m. App. little. Tongue in m. thickly furred. Afternoon, roughness and tightness in chest and expectoration of mucus, frequent discharge of fœtid flatus preceded by rumbling in bowels. Very tired m. and afternoon, as after great exertion. E., after supper, aching pains in abdomen

lasting 1 h., ameliorated by stretching upper body backwards, aggravated by bending body forwards. Rumbling in bowels, as if water were moving in them. 8 to 9 p.m., pains ceased after eructation and discharge of flatus. 11 p.m., a thin stool with relief. Sleep at n. very restless, expectorated mucus at n.—9th. At 8, 9.30, 11 a.m., 12 noon, 2.30 p.m., 1 tablespoonful of last sol., 4.5, 5.15, 1 tablespoonful ant. t. gram. 0·300 in 5 oz. water. App. bad, loathing and disgust at food. M. and afternoon coughed and hawked up mucus. No stool.—10th, at 7 and 8 a.m., 1 tablespoonful. M., on rising, rather hoarse, expectorated some thick mucus. After 2nd dose, nausea. Drank without relish a cupful of warm milk, and ate a bit of bread. Immediately must hurry to stool, and had a normal stool with slight pain in belly. Some saliva ran into his mouth, must often spit, and threw up the milk and bread and some mucus—not sour. Trembled all over, was much affected, hardly himself. For ¾ h. after the vomiting, the respiration was very deep. The vomiting had a favourable effect on him, he felt lighter, more lively, had better appetite, but could eat very little. Afternoon, coughed and hawked up mucus. The hoarseness increased in e. Was up till 3 with a confinement, hoarseness increased, got a short cough and pain in larynx. He left off taking the ant. t. and his hoarseness gradually went off, app. improved, tongue became clean, stools normal. —14th. Ant. t. gram. 0·200 in 5 oz. water, at 11 a.m. a tablespoonful; at 2.45, 3.21, 4.3, 4.36, 5.17, 6.11 p.m., half a tablespoonful. After each dose nausea. After dinner a thin stool, rumbling and pains in belly. Afternoon, expectorated some thick mucus. Tongue furred.—15th, at 7.10 a.m., a tablespoonful; at 8.30, 9.35, 10.37, 11.15, 11.51 a.m., 2.35, 3.20, 4.10, 5 p.m., half a tablespoonful, 11.10 p.m., 1 tablespoonful. At 9 a.m., a stool softer than usual. Rumbling in belly followed by nausea, lasting till noon. Soon satiated and almost sick when eating; on leaving off for a little, appetite returned. After a walk, on coming into house, had when coughing a peculiar sensation of soreness on chest, and expectorated some mucus. At 11.15 p.m., a normal stool.—16th, at 7 a.m., a tablespoonful; at 8.45, 9.45, 10.45 a.m., 3, 4.23, 5.15, 6, 6.37 p.m., half a tablespoonful; 11.10 p.m., 1 tablespoonful. M., pains and rumbling in belly, and nausea lasting ½ h. Forenoon, constant nausea, especially when swallowing saliva. Slight nausea in afternoon. All d. some coughing and hawking of mucus. Tongue furred thickly, yellow. From 7.30 a.m. till 7.13 p.m. no urine. At 11.15 p.m. a soft stool.—17th, ant. t. gram. 0·150 in 5 oz. water, at 10.36, 11.25 a.m., 12 noon, 2.20, 2.50, 3.50, 4.26, 5.15, 6.5, 1 tablespoonful. M., very little appetite, some slight pains in abdomen. Feeling of fulness in stomach. After 5 p.m., slight but increasing nausea, with rumbling in belly, lasting till late in e. Tongue thickly furred. Frequent coughing and hawking of mucus. Great loathing at the medicine. No stool. The next d., no medicine being taken, the symptoms all gradually subsided and went off. During the proving there was a slight diminution in the solid constituents, the urea and the volatile salts, of the urine. (BÖECKER, *op. cit.*, ii, 324.)

16. The effect of tart. em. on the urine has been investigated also by Beigel. His experiments were made on 2 men, who took in each

24 h. 2 grs., during 4 d. Great nausea was caused, and probably loss of appetite, though nothing is said on this point. The urine was sometimes increased, sometimes lessened in quantity; the urea was invariably decreased (by about 5 grms. in each 24 h.). Beigel attributes this to the tart. em., and not to the want of food; but this opinion may be questioned, and, on the whole, Beigel's experiments do not seem entitled to much weight, as the conditions are imperfectly given. (PARKES, *Urine*, sub voce.)

17. *a*. Oct. 18th, 1785, at 10 p.m., rubbed into palms, with assistance of a few drops of water, 5 gr. of tart. em. Rested well till 4 a.m., when he awoke, contrary to his usual custom, and felt slight nausea, heat of skin, and tenesmus. In less than an h. began to perspire, and continued to do so increasingly till he rose soon after 7. There was no further effect save slight disinclination to breakfast.

b. Next n., rubbed in about 9 gr. in solution on selt and two others. Woke at 4 as before, hot and uneasy, pulse quickened as after wine. Felt some nausea and peristaltic movement. Perspiration followed as before, and in forenoon there were two loose motions. For 2 or 3 d. afterwards tendency to looseness continual, also increased flow of urine. His coadjutors were sweated in the n.; one was sick in the forenoon, the other slightly so, but briskly purged.

c. A lady, who rubbed in 5 to 7 gr., had—besides these symptoms —2 or 3 d. later a rash, with considerable itching over whole skin, which did not subside for 2 d. longer. (SHERWEN, *Mem. of Med. Soc. of London*, ii, 386.)

18. GAITSKELL (*Ibid.*, iv, 79) repeated these experiments on himself and others, with negative results; but HUTCHINSON confirmed them, observing also increased disposition to sleep. (*Ibid.*, v, 81. In *Medical Repository*, xvi, 457, a case is recorded where violent vomiting, syncope, and death occurred in a child of 3, after rubbing ung. antim. tart. along spine).

19. *a*. Taken internally, in small doses, tartar emetic increases the secretion and exhalation of the gastro-intestinal membrane, and of the liver and pancreas. Subsequently, it acts powerfully on other emunctories; thus it causes sweating, without any very marked vascular excitement; it renders the mucous membranes (especially the aërian membrane) moister, and, when the skin is kept cool, promotes the secretion of urine.

b. In somewhat larger doses, it excites nausea, frequently with vomiting, disorders the digestive functions, gives rise to an uneasy sensation in the abdominal region, depresses the nervous functions, relaxes the tissues (especially the muscular fibres), and occasions a feeling of great feebleness and exhaustion. These symptoms are accompanied or followed by increased secretion and exhalation from all the different emunctories, but especially from the skin, as above mentioned. Of all emetic substances, this causes most nausea and depression. (PEREIRA, *op. cit.*)

20. After small medicinal doses the stomach experiences a slight sensation of soreness—a sensation easily mistaken for hunger. . . . As an emetic, the action is somewhat tardy, sometimes delayed for

20 m. or ½ h.; the vomiting is repeated, and accompanied by much straining. (RINGER, *op. cit.*)

21. When the dose is large enough to produce vomiting, various general symptoms precede, accompany, and follow this act. Such are,—a copious secretion of mucus and saliva in the mouth; eructation of a watery fluid with an acrid and saline taste; watery stools, preceded by colic; pain in moving tongue; pallor and collapse of features; often cold sweat, especially of forehead; dizziness, and not infrequently scintillation before eyes; general exhaustion, debility, and inclination to repose and sleep; a weak, small, and sometimes infrequent pulse; often palpitation of heart, and sometimes disposition to syncope. In some cases face is hot, while rest of body is chilly. The act of vomiting is often accompanied by laborious and incessant straining and retching, which sometimes continue long after the complete evacuation of the stomach, and produce extreme relaxation and exhaustion. The matters vomited consist mainly of mucus and bile, which are sometimes mixed with blood. After the vomiting is over, a disinclination for food and a strong craving for cool drinks remain. (STILLÉ, *op. cit.*)

II. *Poisonings.*—1. *a.* I have myself witnessed two cases of poisoning by tart. em. One occurred in a woman to whom I was called in consultation by an experienced practitioner, under the impression that it was a case of cholera,* though no epidemic of that disease was then prevailing. There was vomiting and purging of a whitish liquid without a tinge of bile; the pulse was extremely feeble, the features shrunk, and the skin cold and of a bluish hue, especially in the hands and feet, of which the fingers and toes were of a dark livid or purplish colour; the fingers were shrunken like those of a washerwoman; there were cramps of the extremities; and she complained of extreme pain in her stomach and bowels. Upon investigating into the cause of the symptoms, we learned that she had taken, I think on the previous day, "a five-penny-bit's worth of tart. emetic."

b. The other instance was in an infant child, about a year old. Tart. emet. had been prescribed by the attending physician for an attack of croup, which was relieved; but directions were left with the mother to give small doses of antimonial wine at short intervals, without any warning as to the possible danger, or limitation as to the length of time. When I first saw the child some days had elapsed from the first administration of the medicine. It was in the last stage of exhaustion, pulseless, cold, pale, and purplish, and discharging whitish stools. Death quickly followed.

It will have been noticed that, in both these cases, the evacuations were whitish. They had the appearance of opaque rice-water; but differed in this respect from the stools of cholera, that they did not on standing separate into a clear liquid above, and a white flocculent precipitate. (G. B. WOOD, *Therap. and Pharm.*, ii, 64.)

2. Two children, a boy of 5 and a girl of 3, each swallowed a powder containing 10 gr. of tart. em. mixed with a little sugar. In 20 m. they were seized with violent vomiting and purging, and great pros-

* Dr. B. W. Richardson states that he has seen a small dose cause symptoms "strictly analogous to those of Asiatic cholera" (*Lancet*, 1856, i, 401).

tration of strength, followed by convulsions and tetanic spasms; there was also great thirst. The boy died in 8, the girl in 12—13 h. P.M., 4—5 d. later. In body of boy there was effusion of serum into r. pleura; lower lobe of r. lung posteriorly was redder than natural, and peritoneum was injected from recent inflammation. Mucous membrane of duodenum was inflamed and covered with whitish-yellow viscid secretion; this was observed throughout the intestinal canal, though colour was of deeper yellow in colon and rectum; there was no ulceration. Peritoneal coat of stomach was inflamed, mucous membrane much so, especially about larger curvature and cardiac orifice; no ulceration here also, but in one place a patch of lymph. Tongue was covered with white fur and seemed reddened. Dura very vascular; longitudinal sinus contained a coagulum of lymph, but very little blood; vessels of surface of brain very much injected with dark blood, whole surface having a deep purple appearance, and every portion of brain presented many bloody points on section. Cerebellum and medulla oblongata also extremely vascular; no effusion into ventricles. In body of girl, morbid appearances were similar; there were also patches resembling eruption of scarlatina on arms, legs, and neck. Arachnoid was more opaque than usual; and on mucous membrane of stomach, where inflammation was greatest, were two or three white spots, each about size of split pea, which seemed commencement of ulceration. (*Lancet*, 1846, i, 460.)

3. Mr. —, æt. 35, lymphatic temperament, black hair and eyes, ruddy complexion and inclined to corpulency, addicted to high living and the excessive use of stimulants, had taken for 15 d. 4 gr., upon an average, of tart. emet. in whisky, administered to him secretly by his wife "to wean him from the love of intoxicating drinks," for which, unfortunately, he had acquired an uncontrollable appetite. Notwithstanding the drug had promptly produced its characteristic effect upon the stomach, the poor man had continued to drink until forced to take to his bed by the exhaustion caused by constant vomiting and the consequent loss of nearly all the food taken, as well as by the peculiarly debilitating effect of the drug. I was then called to attend him. He was lying on his right side, and any departure from this position was sure to be followed by an attack of vomiting. He complained of great weakness and exhaustion, was very despondent and apprehensive that he should not recover. He dreaded above all things to be left alone, even for a few moments, lest "he should be dreadfully nervous and not know what to do with himself." His countenance was unusually pale, and wore an expression of extreme anxiety; his tongue was covered with a thick, white, pasty coating; he had some appetite for food which, however, was quickly rejected; his thirst was constant and insatiable. From the constant and long-continued use of the drug, his stomach had become intolerant of both food and drink, and he had now a great disgust for whisky, which he believed to be the cause of his illness. He declared that the very tho[illegible] of it produced intense nausea. His pulse had sunk from 78. [illegible] l rate, to 60. While taking the tart. [illegible] he had an [illegible] ngi[illegible] pectoris, from which he had forme[illegible] great s[illegible]

had for the past 4 years believed himself cured of it. Aside from this attack, which may have been accidental, neither the throat nor the thoracic viscera were affected by the use of the drug. He complained of a feeling of numbness and coldness in both legs. The r. arm and hand and the great toes of both feet were cold to the touch. Cramps in the calves of the legs frequently awoke him from sleep. His breast, the anterior surface of the upper arms, the wrists, the hypogastrium, and the inner surfaces of the thighs were thickly covered with an eruption of bright red, small, conical, distinct, hard pimples, with an inflamed base, like lichen simplex. The itching from this was intolerable, irritating him at times almost to frenzy. This began to appear on the fifth d. of the use of the drug, and did not appreciably abate until three d. after its discontinuance. The most careful examination failed to discover any traces of pustular development. (WOODBURY, *N. Engl. Med. Gaz.*, iv, 238.)

5. A man took 20—25 gr. of tart. em. by mistake. In a few m. there was an insufferable feeling of heat in epigastrium, then violent pain in forehead like clavus and some giddiness; in ½ h. moisture in forehead and nape, vomiting for 20 or 30 m.; headache and dizziness increased, with redness of face; castor-oil caused a return of vomiting of bilious matters; burning in stomach and small intestines increased to such a degree that he became very restless, pulse weak (80), tongue white, throat dry, taste unpleasant; inclination to sleep, which relieved him. Next d. mouth was very sensitive, gums bled, with a slight spongy appearance like scurvy, lasting 2 d. (DUFFIN, *Ed. Med. Journ.*, xix, 354.)

6. A man, æt. 40, enjoyed good health till April preceding death. Began then to complain of frequent vomiting and burning pain after taking food, and grew thinner. In time he became so ill as to be confined to bed, and died in 10 d., with sickness, and burning pain in stomach as if hundreds of pins were pricking him; emaciation and extreme prostration; thirst; sallowness of skin, gradually increasing to well-marked jaundice; difficulty of breathing, which was very hurried at last; pain on pressure in epigastrium, but not over other parts of abdomen; gradual sinking, and death. There was no diarrhœa during any part of the illness, but, on the contrary, rather a sluggish condition of the bowels. He had no cramps, and never complained of constriction of throat or of dysphagia. P.M. Whole alimentary canal, from throat to rectum, more or less inflamed; liver, kidneys, and bladder congested, as well as lungs; heart and brain healthy. Antimony was found abundantly in body; and evidence showed that man's wife had been detected in mixing tart. em. with his food and drink. (NEVINS, *Liverp. Med.-Chir. Journ.*, i, 36.)

7. A lady suffered from extreme irritability of the stomach and sickness; the vomited matter was intensely yellow from admixture with bile. There was slight, unconnected wandering, no sleep, paleness or flushing of the countenance, swelling of the face, injection of the eyes, an aphthous state of the tongue and mouth, soreness and constriction of the throat, with pain and a burning sensation in the

region of the stomach, and tenderness in the abdomen; there was a sense of loss of power and coldness from the waist to the toes, and a tingling sensation in the upper and lower limbs, with slight muscular spasms in the arms and hands. There was irritability and soreness of the rectum, and movement short of diarrhœa. There was some difficulty and pain in passing urine. The pulse was generally feeble and from 120 to 132. The most prominent symptom was *a constant feeling of such depression that death seemed to be close at hand.* The treatment had little effect. A portion of urine on analysis was found to contain antimony, and the cause of the symptoms was revealed. No antimonial medicine had been given, and now the metal was actually in process of elimination. (TAYLOR, *Guy's Hosp. Reports*, 3rd ser., iii, 373.)

8. *Summary of appearances after death from antimonial poisoning.*—There may be congestion of membranes of brain with softening and congestion of its substance. An inflamed or aphthous state of whole of mouth, fauces, and gullet, or this may be confined to mucous membrane of fauces and cardiac end of the gullet. The mucous membrane of the stomach is more or less reddened in patches or spots, the result of inflammation, the membrane softened or corroded and easily removed by friction, sometimes covered by false membrane or aphthous crusts; the surface darkened, inflamed or ulcerated; small ulcers with pustular exudation occasionally found; the contents of the stomach of a dark brown colour, consisting chiefly of mucous matters coloured either by blood, bile, or by a mixture of both. The peritoneal or external coat of the stomach has been found inflamed; the intestines present similar appearances, the inflamed portions of mucous membrane being seen chiefly in the duodenum, cæcum, and rectum; the contents of the intestines bilious or bloody with much mucus; aphthous ulcerations of the glands of the small intestines; the lungs showing more or less congestion in portions of the lobes; the heart empty, or, if blood be contained in its cavities, this is dark coloured and liquid; the blood liquid throughout the body. In cases of chronic poisoning the liver is enlarged, softened, and its structure easily broken. The organs of the body have been found well preserved. When life is protracted there has been noticed gastro-enteritis in a severe form. (*Ibid.*)

9. A weakly man was attacked with bronchitis accompanied with much fever. After losing a sufficient quantity of blood he was ordered by his physician to take nitrate of potassa, but on the 3rd d. from his attack he took 10 gr. of tart. em. dissolved in 7 oz. of water in 1 d. By this his chest was considerably relieved, but a severe form of angina supervened. The whole mouth and lips were very much swollen and excoriated in many places, as though from a salivation of mercury. The tongue was deep red, and dry in the middle. The soft palate and throat were likewise of a deep red, and covered with small vesicles, many of which had burst; and these parts were so much swollen and covered with thick mucus that the poor fellow was quite unable to swallow even liquids, and his breathing was obstructed. On my arrival I ordered the mouth and throat to be well rinsed with a lukewarm decoction of groats, and I observed this serious affection, which

was attended with a considerable fever and nightly delirium, to give way in 3 d. (TROSCHEL, *Med. Zeit.*, Oct. 9th, 1840.)*

10. A man, æt. 58, affected with pneumonia, was treated Dec. 24th—27th with tart. em., gr. iij to ℥xvj of water, 2 tablespoonfuls every 3 h. On n. of 27th, throat became so much affected that he could not sleep; deglutition of even small portion of liquid accomplished with utmost difficulty. At noon on 28th pulse was found 100, and tremulous; soft palate and uvula, with neighbouring parts of pharynx and roof of mouth, were covered with an ash-white envelope, apparently of some thickness, very much resembling the appearances produced by a free application of nitrate of silver; portions not so covered had pale-red unhealthy colour. Next d., much thick mucus from throat and mouth. On 30th, part of "slough" came away; parts underneath red and ulcerated. Fauces, up to Jan. 7th, were still bright red, with some superficial ulcerations.

At height of trouble patient felt as if head and throat were separated from trunk. (ANNAN, *Medical Times*, xiii, 316.)

11. The operation of tart. em. upon the gastric mucous membrane may produce a croupous process; it is, however, commonly limited to a few streaks. (ROKITANSKY, *Path. Anat.*, Syd. Soc., ii, 26. Dr. Imbert-Gourbeyre, *Gaz. Méd. de Paris*, 1860, cites 6 cases, besides those given here, in which pseudo-membranous inflammation of parts of the alimentary canal had occurred from the use of tart. em.)

12. In 26 out of 144 cases of pneumonia treated with large doses of tart. em., BOUDET observed its effects on mouth and throat. There was a burning sensation with constriction in pharynx and œsophagus, with swelling, dryness, heat and redness of posterior fauces, difficult deglutition, and a disagreeable metallic taste; later, upon the arches, the velum, the pharynx, the edges of the tongue, and the cheeks, ulcers made their appearance. They were generally 1 or 2 lines, but sometimes ½ inch, in diameter, except upon the dorsum of the tongue, where they were generally linear, and covered with a deposit resembling false membrane. (STILLÉ, *op. cit.*)

13. The false membranes produced by tart. em. in the cavity of the mouth, and principally upon the tongue, have the form of irregularly rounded patches, whitish or greyish in colour, somewhat thick, consistent, and firmly adherent. In the œsophagus they are small, delicate, pale, and easily detached from the subjacent tissue. Beneath the pseudo-membrane, the lingual mucous structure is excoriated, ecchymosed, wrinkled, and forms an elevated margin around the plastic deposit, which is red and somewhat extended. The œsophageal mucous membrane is ulcerated, the borders of this ulceration are not elevated, but enclosed by a grey circle, the base being softened and greyish, and, at some points, ecchymosed. (LABOULBENE, *Recherches sur les affections pseudo-membraneuses*, p. 132.)

14. As in the case of mercurial, plumbic, and cupreous impregnation of the system, there is likewise an antimonial sign, which is perfectly

* "After the use of tart. em. for some days, patients sometimes complain of irritation in the mouth and throat, with a metallic taste" (PEREIRA).

pathognomonic. It is, as with all other substances, a phenomenon of the gums and teeth. In copper impregnation, it is not so much the free margin of the gum, as the parts of the teeth next the gum, which are coated with sordes; whilst in antimonial impregnation, it is not the teeth, but the whole surface of the gums, both within and without, which assumes the appearance of the brightest pink velvet, with a raised pile. (*Lancet*, quoted by Marcy and Peters.)

15. Tartar emetic is a powerful local irritant. Its irritant properties may be regarded as of a peculiar or specific kind; at least if we are to judge from its well-known effects when applied to the epidermis, as in the form of solution or ointment, or sprinkled over a plaster. It causes an eruption of painful pustules, resembling those of variola or ecthyma. The smaller ones are semi-globular; the larger ones, when at their height, are flattened, are surrounded with an inflammatory border, contain a pseudo-membranous deposit and some purulent serum, and have a central dark point. When they have attained their greatest magnitude, the central brown spots become larger and darker, and, and in a few d., desiccation takes place, and the crusts are thrown off. They are usually very painful. I am acquainted with no agent which produces an eruption precisely like that caused by emetic tartar. (PEREIRA, *op. cit.*)

16. The clear lymph of the pustules which arise from the external application of tartrate of ant. produces inoculation pustules, which are quite indistinguishable from those produced by vaccination. . . . I have made 31 vaccinations and revaccinations with lymph of tartar emetic pustules, and I have found them in all their relations analogous with those from cow-pox lymph. (LICHTENSTEIN, *Hufeland's Journal*, xcii, 76.)

17. A girl of 14 took in the course of a fortnight [malady not mentioned] ℈j of tart. em. internally. Some d. after leaving off medicine, there appeared a varioloid eruption, which ran a course exactly like that produced by tart. em. ointment. (CRICHTON, *Verm. Abh. einer Gesell. prakt. Aerzte zu St. Petersb.*, 1835.)

18. A man, æt. 34, took for pneumonia 10 gr. of tart. em. in solution during 36 h. In 24 h. after last dose there appeared an eruption having the most perfect likeness to that caused by tart. em. ointment. It consisted of small papulæ or vesicles, which rapidly enlarged and became full of pus, surrounded by a red areola, so that they resembled true variolous pustules: they were besides extremely painful. After a few d. they dried up and formed crusts. Some of the pustules were larger than others, like those of ecthyma. Eruption commenced on inner surface of forearm, then spread all over back, where pustules were partly solitary, partly grouped, or even confluent. Neither vomiting nor sweat attended formation of pustules, but they were preceded by some watery stools. (BOECKH, *Med. Zeit. von dem Ver. f. Heilk. in Preussen*, 1843.)

19. An Essex farmer, suffering from pneumonia, had been taking tart. em. in ½ gr. doses every 3 h. for 6 d. Dr. Richardson states that he witnessed here the peculiar eruption on the skin which sometimes appears. The body was so generally covered with pustules that the

friends of the patient mistook the eruption for smallpox—a natural error. (*Lancet*, 1856, i, 509.)

20. In 2 or 3 cases in which tart. em. had been administered, Dr. Brinton has seen a peculiar eruption of the skin, like that produced by the external application of the drug. (*Ibid.*, p. 590.)

21. I have used tart. em. in large doses in croup for the last 15 years, in children of all ages, . . . and have obtained a cure without any accident. I have indeed sometimes met with slight antimonial eruptions, not very numerous, on different parts of the body. (CONSTANTIN, *Gaz. des Hôp.*, Mar. 26th, 1859.)

22. I have in 3 cases seen a profuse pustular eruption on the cutaneous surface result from the internal administration of tart. em. ; in 2 of the cases the eruption supervened on that of rubeola, where the complication of pneumonia had caused the medicine to be resorted to in moderate doses. (BUTLER LANE, *Lancet*, 1846, i, 361.)

23. Dr. IMBERT-GOURBEYRE, in a paper on "Antimonial Eruptions," shows by observations and citations that the local application of tart. em. is liable to produce pustules on other parts of the body, and especially at the ano-genital region ; and maintains that these are the dynamic result of absorption, and not the effects of mere mechanical transference, on the following grounds :

1st. Several patients subjected to antimonial friction asserted that they did not touch the parts of the body which were the seat of the secondary eruptions (6 cases).

2nd. The medical attendants themselves in certain cases took great precautions in order to prevent any transference of the ointment (4 cases).

3rd. These secondary eruptions have been observed on infants in swaddling clothes, and on a patient whose limbs were paralysed.

4th. The antimonial eruptions on the place where the ointment has been rubbed in leave cicatrices ; the sympathetic eruptions do not.

5th. If the patient's fingers are the cause, how does it happen that the secondary eruptions do not occur more frequently ? and especially how is it they do not occur very often on the eyelids, nose, lips, cheeks, face ? They have never been seen in these situations ; and yet does not a person apply his fingers to his face far more frequently than to the ano-genital region ?

6th. What is to be thought of those cases where the pustules fail to make their appearance on the spot subjected to the frictions, but are developed elsewhere (3 cases) ? and where, the friction having been discontinued, pustules appear elsewhere 2—5 weeks later (2 cases) ?

7th. On the mechanical hypothesis, how is it that the ano-genital eruptions are not more frequent ? whereas they occur extremely rarely in proportion. (*Gaz. Méd. de Paris*, 1860.)

24. The same author cites 5 cases in which pustulation of parts of the alimentary mucous membrane occurred after the free administration of tart. em., and 3 in which it was observed on the surface of the peritoneum after a large quantity of antimonial ointment had been rubbed upon the abdomen. (*Loc. cit.*)

III. *Experiments on animals.*—1. *a.* Viborg found that when tart. em.

was injected into veins of horses, in doses of 12—30 gr., it occasioned frequent and small pulse, trembling and twitching of muscles of skin, gaping, and a drooping look. On injection of 60 gr. the symptoms were very striking: pulse grew very frequent, and breathing spasmodic and noisy; there were thin dejections, a copious secretion of sweat, tears, and saliva; automatic movement of lips and tongue, as in the act of licking, grinding movement of lower jaw, restlessness, stretching of limbs, scratching of flanks with hind feet, repeated movements of head towards same parts, and tremulousness with spasms of shoulders, neck, and hams. When quantity injected reached 120 gr., the symptoms were sudden and violent. They consisted of cramps, vertigo, paralysis, and death within 3 h.

b. According to Lappe and Hertwich, when substance was administered by stomach in doses of ʒj or ʒij every 3 or 4 h., there occurred, sooner or later, diarrhœa, debility, increased secretion from mucous membranes, and, if medicine was continued, a sort of typhoid condition, with diminished plasticity of blood. A single dose of ℥ss caused frequency of pulse, thirst, borborygmi, and muscular spasms; ℥j caused death in about 8 h.; ℥ij, same result in 2½ h.

c. Pecholier, in his experiments upon animals, found rate of pulse to fall, on an average, 20—25 beats a m. under influence of doses of grs. 1 or 2; rate of respiration and temperature declined in like proportion. The more minute experiments of Ackermann confirm this statement, showing that immediately after injection of a solution of tart. em. into veins pulse rises rapidly in frequency, even by 50 in m., after which it sinks below original rate. After poisonous doses, acceleration is slight and transient, but decline in frequency rapid until a few m. before death. It also becomes irregular. Uniformly arterial pressure is diminished, while duration of pulse-wave is lengthened. The venous system becomes everywhere engorged; parts like the tongue and gums, which in health possess hue of arterial blood, become first pale and then dusky in colour. The temperature falls lower the longer such a condition lasts. (Stillé, *op. cit.*)

2. Dr. Nevins experimented on 16 rabbits, the doses varying from ½ to 2 gr.: it required from 12 to 73 gr. to cause death. For first few d. no striking symptoms were present; then animals lost spirit in great degree, and gradually became emaciated, but continued to take food almost to h. of death. All who lived beyond 10th d. had diarrhœa (rabbits are incapable of vomiting). Spasms were not present in a single instance; but several died in violent convulsions. The mouth was very severely ulcerated in several. P.M. Emaciation often extreme, so that not a trace of fat remained in body. Stomach frequently inflamed in patches but not throughout; sometimes, but rarely, ulcerated; always more than half full of blood; pylorus frequently so much thickened and indurated as to resemble cartilage under knife. Small intestines frequently inflamed in patches, rarely ulcerated; intestinal glands sometimes excessively enlarged. Liver generally congested in parts, occasionally inflamed, hard and brittle. Kidneys generally more or less congested, sometimes one only. Bladder generally distended with urine and more vascular than usual. Trachea

and lungs frequently congested, sometimes highly inflamed; the two lungs seldom alike. In several cases extensive extravasation of blood upon surface of lungs, liver, and stomach, and below mucous coat of cæcum. Heart generally full of black, uncoagulated blood. (*Loc. cit.*)

3. Dr. CAMPBELL found 5 gr., applied to a wound, kill a cat in 3 h. Inflammation was set up in the wound, and vivid redness within the stomach. (CHRISTISON, *op. cit.*)

4.—*a*. Dr. B. W. RICHARDSON introduced into cellular tissue of large dog ʒj of tart. em. in ℥ij of distilled water. After ½ h. shivering and vomiting, latter repeated, much flatus and once purging. In 1 h. body quite powerless, limbs and breath cold, pulse and respiration greatly reduced, comatose sinking, death in 1 h. 40 m. Respiration survived heart 3 m. P.M. General venous system greatly engorged, and on inner surface of stomach, along greater curvature, a patch of bright pink 2 in. by 1½.

b. A dog made to inhale antimoniuretted hydrogen died in 3 h. 45 m. Same P.M. appearances; also pleural cavity contained ʒvj of pinkish serum, which, on being poured into a hot tube, coagulated firmly into a jelly-like clot, whence clear serum exuded.

c. A wound in a dog being dressed with tart. em. ointment for 7 d., animal lost appetite, became thin and exhausted, and died on 7th d. There was no vomiting or purging. Same P.M. appearances. (*Lancet*, 1856, i, 508.)

5. If one injects into the veins of an adult dog, of medium size, 6 or 8 gr. of tartar emetic dissolved in 4 oz. of water, there are at first vomiting and dejections more or less repeated; then it becomes manifest that the animal has difficulty of breathing, its pulse becomes frequent, then slight tremors like those which accompany chills appear; the breathing becomes more and more difficult, the pulse irregular and even intermittent; the saliva becomes more copious; the animal becomes restless, and knows not what attitude to take or preserve; the symptoms become more intense, and death ensues about 2 or 3 h. after the injection. In opening the cadaver, one sees that the lungs are profoundly altered; they have changed their natural hue for one of orange if the animal is young, of violet if it is older. The crepitation proper to the pulmonary tissues has almost completely disappeared; on incision, the lung substance is found gorged with blood, and as if hepatised at some points, while at others it appears to have undergone splenisation. The mucous membrane of the alimentary canal is injected. (MAGENDIE, *De l'émétique*, p. 36.)

6.—*a*. A strong and active rabbit, breathing normally 80 times a m., took each d. 3 doses of tart. em. of 25 centigrammes each, at 4 h. intervals. At the end of 3rd d. the appetite had markedly diminished; the respirations had risen to 110. On the 5th d. 3 liquid stools, greenish brown. During the next 3 d. frequency of respiration fell; on the 8th it was 60, noisy, and like that of an animal that had been running; it seemed more difficult. The number of respirations continued to diminish: on the 11th breathing was 42, as noisy, and more and more laboured; the inspiration much prolonged. On the 15th d. the animal took only 2 doses. In e. I found it lying on its side, breathing

very noisy, and 37 only; some convulsive movements in head and limbs. It died same e.

b. P.M.—A little serosity in l. pleura; its colour dead white. The l. lung is dark red, slate-coloured in its two lower thirds and in all its upper border; it is especially on the convex surface that this tint is most decided, and it is sprinkled there with blackish points. On the concave and internal surfaces the same coloration exists, but it is more greyish; two spots here are almost gangrenous in appearance. The superior third is congested and has an emphysematous strip. The r. lung is red, and simply congested. Crepitation is absent in the two inferior thirds of the left lung, and its density is increased; at apex, signs of emphysema only are present. The r. lung crepitates throughout, but perhaps less than normally. Section of base of l. lung shows granitic appearance even more than on surface; at certain points it has an ashy appearance; on scraping there is removed a little sanious liquid, bloody and greyish; a piece placed in water sinks to the bottom: the cohesion is much lessened, the finger penetrating easily, and reducing the tissue to putrilage. The trachea contains a thick liquid, tenacious and bloody; it presents a decided red punctation throughout, and towards the lower part a large wine-red patch; the mucous membrane is thickened especially at this point, and is easily stripped off. The redness diminishes gradually along the r. bronchi, where the mucus is not very abundant; in those on the l. it is very intense and extends farther; they contain, like the trachea, a good deal of sanious and sanguinolent mucus: towards the ramifications the tint is more grey. On section, one sees little bubbles of liquid forming at the cut ends. In the heart, no blood in l. cavities; r. auricle showed fatty degeneration, and this with its ventricle contained clots. In the digestive tract there was only a little redness; some slight serosity in peritoneum; liver brownish; mesenteric vessels gorged with blood.

Nine other experiments produced like results; only the larger the dose and the earlier the death of the animal, the more simply congested were the lungs. (MOLIN, *Des Spécif. en Méd.*)

7. *a.* I took a rabbit, 6 months old, vigorous, having, in its normal state, 78 respirations per m. April 1st.—I administered to it, in sugar of milk, 4 drops of the 6th dilution of *tartarised antimony* m. and e. I fed the animal with bread, bran, fresh leaves and vegetables. Its shed was so constructed that it could not suffer from cold or damp. Up to June 25th I did not observe any symptoms resulting from the administration of the medicine. I then increased the dose to 8 drops of the 6th dil., m. and e. Towards the 10th of July the appetite of the animal diminished, and it cared to eat of fresh leaves only. Resp. was short, and had risen to 90 per m. The animal kept at the further part of its shed. July 14th.—There were two liquid evacuations to-day. Appetite has returned. Respiration 95, short and anxious. July 24th.—The liquid motions, which are of a brownish colour, have continued during the last 10 d. The animal has lain on its abdomen with its paws stretched out. The bowels are much inflated, and on percussion sound as if distended with gas. The eye is rather dull; the ears are hot. It does not like to be touched. Respiration 105, hurried and

short. It eats less and less. 28th.—Since yesterday m. it has taken no food. The liquid evacuations are more frequent. It lies at the end of the shed; the eys are very dim, and the ears rest on its neck; the fur has lost its brilliancy. Respiration 110, and very anxious. 31st. —The animal died to-day; I made *post-mortem* 6 h. after death. About the lips there is a frothy liquid; the gums are of a brownish colour; the mucous membrane of the mouth and of the pharynx is of a deep red colour, upon which I also observe some small white spots. The stomach contains a small quantity of fluid, which is stringy. The mucous membrane is swollen and has patches of a red colour here and there. In the duodenum also I observe the red patches. In the rest of the small intestines are also streaks of red and arborisations. The mucous membrane of the large intestines is of a dark red colour; and there are some ulcerations in the cæcum. The traces of inflammation get fainter as we get towards the end of the intestine. The peritoneum shows some traces of the same red colour. The liver is increased in size and of a deep red. It is rather hard, and more perceptibly so when it is cut. The spleen is normal. The kidneys are red and congested. The bladder is distended and contains thick, straw-coloured urine, having a strong ammoniacal odour. The mucous membrane of the larynx and trachea is red, and presents arborisations of a deeper hue. In the pleuræ there is abundant fluid of a whitish-yellow colour, in which float threads of albumen. The membrane is red. The lungs are inflated, and the parenchyma is of a deep red. Crepitation exists in the lower two thirds of the r. lung. In the remainder the density is increased. Upon section there oozes a little red fluid, and I find in the tissue of both lungs clots of coagulated blood; particularly in the apex. The pericardium is red, but there is no fluid in the cavity. There is coagulated blood in the cavities of the heart. Brain is normal.

b. A rabbit, 5 months old, not very strong. Respiration 82. Oct. 20th.—I administer to it, m. and e., 4 drops of the 6th dil. of tartarised antimony. Nov. 8th.—Observing no symptoms, I give it 8 drops m. and e. 13th.—Its motions are liquid and yellow. Eats nothing all d. 14th.—It begins to eat again a little. The liquid motions continue. 18th.—The evacuations have been completely suppressed since yesterday e.; but he eats very little. 24th.—Resp. becomes quicker, 105 per m., and very loud. He now and then makes a noise which one might call a cough. He is very restless, cannot remain quiet. Ears seem as if broken; are flabby and very hot. Eyes are dull, and thick mucus comes from the mouth. The fur has lost its brilliancy. The stomach is inflated; percussion tympanitic. The animal rolls about as if he had colic. He no longer eats. He remained in this state till the 26th, when respiration became embarrassed and he died. I made *post-mortem* 4 h. after death. The fur is dull looking and is easily detached. From the nasal fossæ comes a thick, black mucus. The membrane is red; also the membrane of frontal sinus. Nothing abnormal in the brain. The jaws are firmly closed and can only be opened forcibly. A fœtid odour is then perceived. The gums are blackish; the saliva is glutinous, thick, rather dark, and contains bubbles

of air. The tongue is hard and rather contracted. The mucous membrane of the mouth and throat is red. The stomach has collapsed to its natural size and looks like parchment. The pyloric orifice is red and swollen. In the intestines there is redness in patches, particularly in the large; and, like the stomach, they have returned (collapsed) to their natural size. There is rather a large quantity of dung in the large intestine and it is very hard. In the rectum are several ulcerations; and the mucous membrane around the anus is swollen. The peritoneum is inflamed, but contains no fluid. The liver is pale, hard, and shrunken; when cut a serous fluid escapes. Spleen is normal. Kidneys are congested. Bladder is distended with a thick, reddish-yellow liquid of a disagreeable odour. The vesical mucous membrane is very red, particularly towards the neck and the canal of the urethra. The pleura is injected, but there is no fluid. The lungs are of a violet red, the tint becoming deeper in the inferior lobes, and there are large blackish patches like spotted marbles. The hepatisation of the lesser lobe and of the inferior part of the superior lobe is less noticeable. There is no crepitation. On section, we see a granite-like appearance with blackish-red points. Clots of blood are found in great number in both lungs; and in the apices are crude tubercles, more especially in the l. On section, there escapes a little sanious fluid. The pulmonary tissue easily breaks down when taken in the fingers. It has a hard, granite-like look, something resembling the liver. A small piece put in water goes to the bottom. The pericardium presents no redness, nor is there any effusion. The heart is congested. The aorta is distended near the arch, and there is a pouch containing black and clotted blood. The animal is extremely emaciated. The flesh is soft, flabby, and discoloured. (Ibid, *Compte rendu*, &c., p. 85. Five other experiments were made with same dilution, and with similar results to those reported above.)

8.—*a*. In the *Journal of Physiology* for 1878 I have published in conjunction with Mr. Murrell some experiments showing that tart. em. is a protoplasmic poison which destroys the functions of all the organs of the body in the order of their vital endowments. We have shown that the general paralysis which ensues in a frog on the hypodermic injection of the drug is due to its action on the spinal cord, thus confirming previous experimenters; and that it is also a direct paralyzer of the motor nerves, and of the muscles, including that of the heart.

b. Tart. em. is a general as well as a cardiac depressant. The general depression is usually attributed to the action of the drug on the heart, but, as ant. is a poison to all nitrogenous tissues, I would suggest that its depressing action is due also to its effects on the central nervous system, the nerves, and the muscles.

c. We noticed a peculiar effect on the skin. In a few h. the cuticle of a poisoned frog became softened and gelatinous, too soft to be stripped off, though it could be easily scraped off every part of the body. Even small doses soon produce this remarkable effect, for in one experiment the skin, after a small dose, came into this condition whilst the animal could still crawl pretty well. Miss Nunn, Lecturer

on Biology in the Wellesly College, Boston, U.S.A., under the direction of Dr. Michael Foster, investigated microscopically the action of arsenious acid and of tart. em. on the skin. Miss Nunn shows that the peculiar effect of these substances is limited to the epidermis and leaves unaffected the corium, with the exception of increasing the quantity of blood it contains. (RINGER, *op. cit.*)

9. The structural changes in the epidermis brought about by ant. are essentially the same as those produced by arsenic. There is (1) the same marked degeneration and partial solution of the columnar layer of cells, which causes the epidermis to be held less firmly to the dermis; though, previous to the hardening, the extreme softness of the cells prevents it from being stripped away as can be done in the case of arsenic. There is (2) the same degeneration and separation of all the cells of the Malpighian layer, and (3) the same desquamation of the corneous and intermediate layers. The principal difference is the greater softness, or more complete isolation of the cells, and the somewhat more marked change in the intermediate layer. The cells of this layer appear more thoroughly detached from one another, and hence cavities are more frequently found between them; but their protoplasm is never formed with threads and processes enclosing spaces, as in the columnar cells. It is this separation of the constituent cells of the intermediate and also of the Malpighian layers which is the chief determining cause of the pulpy or mucilaginous condition of skin in antim. poisoning mentioned by Ringer and Murrell. Altogether, the action of antim. is more rapid than that of arsenic, and the changes produced by it bear evidence of more violence. . . . The skin, under the influence of either drug, presents a striking contrast to one which has been left to disintegrate in a natural manner after death. . . . Both drugs affect the cornea similarly to the skin, but in a less marked manner. (NUNN, *Journ. of Phys.*, 1878.)

10. MAGENDIE removed the stomach of a dog, and attached a pig's bladder filled with fluid to the œsophagus in its place. He then injected tart. em. into the veins of the animal, and found that vomiting occurred in the same way as if the stomach had been *in situ*. (*Mém. sur le vomissement*, p. 19.) This experiment has been confirmed by Brinton (*Cycl. of Anat. and Phys.*, Supplement, p. 319), who further proved that when tart. em. was injected into the veins of an animal it was very freely and rapidly eliminated by the stomach. Dr. Richardson (*Lancet*, 1856, i) has corroborated this, and has also found that a similar elimination follows the inhalation of antimoniuretted hydrogen. (H. C. WOOD, *op. cit.*)

11. M. CHAUPPE divided the two pneumogastrics in a dog, which was then allowed to rest till the vomiting provoked by the operation had entirely ceased. He then made a subcutaneous or intra-venous injection of an emetic dose of the substance whose action he was desirous of investigating. With tart. em., vomiting occurred as quickly and as freely in all instances as when the nerves were intact; and more so than when the drug was introduced into the stomach. (*Gaz. Méd. de Paris*, Aug. 1st, 1874.)

APIS.

Apis mellifica, L. Honey-bee.

I. *Provings.*—1.—*a.* Dr. F. HUMPHREYS, 25th August, took on tongue, at 2 p.m., 1 drop of a tincture made by irritating bees in a bottle and then pouring alcohol on them. In 5 m. slight pain in l. temple soon followed by contraction and gnawing in throat. 4 p.m. Whole border of tongue feels scalded, and is as painful as though it were quite raw; small papule-like elevations along border of tongue. 9 p.m. Contractive sensation in throat increased, rendering swallowing difficult. Tongue very painful, the burning raw pain increases, vesicles appear along its border with shooting pain.—26th and 27th. The feeling as if scalded in mouth and throat continues. Small elevations of the skin like ants' bites appear over the external end of the l. eyebrow, pain as if raw and are very sensitive to pressure.

b. 2nd Nov., 8.30 a.m., 2 dr. of 1st dil., 5 to 100. Immediately violent sneezing, then pressive pain in sinciput with vertigo. Pain in r. shoulder and upper arm; pressure on chest. Transient smarting itching over r. eyebrow. Pricking itching in l. eye, on lids and round about eye, mostly in inner canthus. Pricking itching in throat, deep down in it, as if in root of neck at the last cervical vertebra, with contractive sensation.—3rd. Painful stitch in muscles of r. side of nape, worse when head is bent to that side, not when it is moved in any other direction, occurring on rising. Burning like fire on small well-defined spots on hands, for several m. Itching of r. eyelid in fits during d.

c. 6th Nov. took 2 dr. 2nd dil. Soon slight pressing in occiput. Itching in l. inner canthus. Painful pressure in l. eyeball, mostly on its lower part.

d. 19th Nov. 2 dr. 2nd dil. Fine burning pricks in finger-tips. Head confused and dull. Fine burning pricks in knee. Sharp tensive pain from nape spreading upwards behind l. ear and over l. side of head. Shooting in both little toes. Itching of eyelids. Pain in sinciput with confusion in head. Disagreeable pain in sinciput. Sticking together of lids. Pain around l. eyeball.—20th. Shooting in r. eyeball. Slow pulsating boring pain above left crista ilii, relieved by eructation. Tensive pain in l. shoulder, spreading up nape. Burning shooting and swollen feeling about l. eye in supraorbital region.—21st. Restless tossing about the latter half of n.—22nd. N. sleep full of dreams. Lids stick together, must open them in m. with finger. Sensation as if a quantity of mucus were in l. eye all d.—23rd. Soft stool m. Sharp pains in chest, n. Sticking together of lids. Irritable humour all d.—24th. Stitches through chest and back, n. Eructation with taste of white of egg. Soft urgent stool m. Sleep at n. full of dreams. Irritable humour, nothing is right, everything wrong.—29th. Stool confined for several d. Copious accumulation of thick phlegm in throat, causing frequent hawking, m. Painful vesicle as tender as a boil, with red areola, suppurating in middle, on left side of hairy part of pubes, remains painful for several d.

e. Dec. 1st took 6 dr. 6th dil. Soon pricking in palms and backs of hands, face, forehead, underneath eyes, and in nose as sharply defined small spots. Tension on r. side of nape up to behind ear. Violent sharp pains over r. eye, extending down to eyeball, transient.—Dec. 2nd. Hoarseness and rough voice all d. and last m.

f. (Dose not stated. Swelling of lips and swollen feeling for several d., followed by a slight eruption round about them and dryness and exfoliation of lower lips. Roughness and feeling of tension in lips, especially the lower. Dark stripes along the red of the lips, mostly on the upper lip; it is rough, chapped, and exfoliates. Every few m. must pass water all d., after having taken medicine the e. before. Smarting shooting sensation in r. eyeball causing flow of tears. Pain in occiput, increased by shaking head. Burning on edge of lids causing eye to water. Itching in l. inner canthus. Burning of toes with redness and heat of them, whilst the feet are cold. Nausea seems to rise up in his throat. Burning shooting as from fire on chin and cheek-bones. Burning shooting in region of l. eyebrow. Burning at upper part of l. ear.

g. (Ibid.) Sleep at n. full of dreams. Twitching of r. lid. Nausea and inclination to vomit at n. with disagreeable feeling and rumbling in belly, as though diarrhœa would come on. Sticking together of lids. Soft urgent stool, m. Headache over eyes with pains through eyeball, dull, heavy, stretching, for about 1 m.; this occurred twice.

h. Put some of the tincture on his tongue June 14th. Immediately crawling in fingers of l. hand, prickling and feeling as after a blow in lips and nose. After 8 h. stiffness of tendons on left side of nape, painful when head is moved to other side. (*Amer. Arzneiprüfungen.*)

2. A married woman whose menses had once failed to appear, which had never happened before, took, 10th April, 2 dr. 2nd dil. 1st d., pain along forehead, just above both eyes.—2nd d., some discharge of blood from vagina without pain or uneasiness.—3rd d., slight increase of the hæmorrhage.—4th d., syncope and violent metrorrhagia with weight in hypogastrium, restlessness, yawning and great anxiety. Took puls., then bell., whereupon the restlessness ceased, but as the blood continued to gush forth took sabina, whereupon the discharge diminished, but lasted several d. longer, till at length a fœtus of 2 months was expelled. (*Ibid.*)

3. Dr. C. Hering took, 28th Feb. 8 a.m., the poison of one bee. After 1 to 2 m., a distinct bitter taste at back of tongue and fauces. After 15 m., pain in abdomen, slight, followed by urging to discharge flatus; after 20 m., a loud discharge of stinking flatus. After stool, rumbling of wind. L. arm numb. Violent pressure on a small spot in upper part of l. side of head (after pulling on boots). In l. half of face, especially about eye, feeling as if it would swell, very transient. 9.30 a.m. The pain in r. tendo Achillis worse than usual. 10.15 a.m. Violent shooting burning pain in a small spot at l. lower part of nape; also in l. arm and l. side of occiput, but less severe. 10.30 a.m. Violent pain on, above, and below l. knee, more above to the side and front. Itching of palms, worse on l. side, in small burning spots. All this

before or after drinking coffee, which seems not to affect the action.—11 till 11.30 a.m. R. eye full of tears, which sometimes overflow. Noon, a kind of coryza. Burning itching here and there, especially severe on l. thigh posteriorly. Tired, bruised in all limbs, especially back, just as one feels in the m. after great exertion the d. before, especially felt on rising from seat, must stretch himself even in the street. 12.30 p.m. Severe burning stitch in upper part of sacrum. Afternoon, headache in a small spot inwardly on l. anterior angle of head, above outer end of l. eyebrow, remains all d., worse on coughing (still some next m.). 1 p.m. Violent pain about first l. upper molar, seems to be in connection with headache. Desire for coitus during d., when sitting in room and driving in carriage. In lower part of l. knee in front, violent transient pains. 3 to 5 p.m. Curious inward trembling feeling, as after an illness, with a kind of shuddering (without coldness or shivering) running over back, chiefly in its upper half. 6 p.m. Dryness under tongue, going off on moving tongue much. All e. headache and some cough in single impulses. At n., before midnight, woke up from other causes, and had violent cough from a crawling irritation in windpipe, near pit of throat. At each cough increased headache, above on the l. After ½ h. some phlegm is detached and swallowed, and the cough ceases at once.—21st. Headache continues, less severe, more extended. Desire to change occupation, will not remain long at anything; at same time, confusion of head. Yesterday and to day, some pain in back under scapulæ, worst on r. Very fœtid flatus. Burning twitching like a pricking contraction in r. thumb, chiefly from without inwards, also on other places similar sensations. Yesterday and to-day, marked increase of micturition. Stool scanty, pappy; piles remain externally. Now and then, violent pains on outer side of l. knee. Pain in interior of r. ear. Burning places here and there, especially on back, which itch also. Coryza e., slight stoppage of nose, and now and then drops from it; dread of cold, which, however, does not aggravate, whereas warmth aggravates. E. very sleepy early. Severe cough, especially after lying and sleeping, the tickling on a small spot low down at back of windpipe wakes him. When coughing head is painful (l.), must bend head back so as to diminish the pain caused by the cough. Cough most in warmth and when at rest. As soon as the smallest portion of phlegm is detached it is relieved.—22nd. M., r. eye waters. Coryza continues but is dry, only a little moisture on blowing nose. Nose feels congested as though it would swell, but no soreness. All d., the same bruised feeling in back, chest, last ribs, worst l., on a spot as broad as the hand, as though the muscles beneath were sore. For several d. diminished appetite, though the tongue that was previously furred is now clean.—N. between 22nd and 23rd. Cough retards getting to sleep. Woke about midnight with same cough. Distinct tickling behind and low down, which causes irresistible violent coughs. After repeated attacks a small lump of phlegm is detached, and he gets rest. Must bend head back when coughing, never had a similar cough. —23rd. M., crawling as of an insect on inside of r. knee for several h., frequently repeated. Nothing visible there. Always in m. small, yellow, thin stools, to-day a few drops of bright-red blood after stool, not unusual.

—23rd and 24th. Cough only e., not at n.—24th and 25th. Internal burning at a hang-nail on outside of r. fourth finger, where there is much inward pain, but no redness. Also inward burning on tip of finger. For more than a week the stool remained thin, pappy, bright yellow, then it became darker. Also the burning at the finger-tips recurred occasionally for a week. (*Ibid.*)

4. Mr. LANGSTROTH, a gentleman fond of natural history, had occupied himself for 8 or 10 years in the study of bee life. During that time he was in the habit of frequently killing bees and tasting the honey they contained, in order to ascertain whence it was derived. He very often got the poison out of their poison bags on his tongue, and he noticed that its taste was aromatic bitter. On learning that the poison of the bee was capable of producing morbid symptoms, he remembered that his health had not been so good while making his bee investigations as it was previously; and this although he led a most regular and careful life, took no wine, beer, or spirits. In order to try if, perhaps, the bee-poison he had swallowed during all these years was the cause of his ill-health, he took the poison of a bee on his tongue, and that same d. many of his troublesome symptoms returned, and lasted several d. The symptoms that had troubled him these 10 years were the following: often tiresome prostration; loss of all power, with trembling feeling. Occasionally disagreeable sensation in head making him unfit for mental work. The head is too full as if of blood. Weight and pressure, and often sudden rush of blood to head. Cannot bear close rooms, especially when over-heated. Head confused and dizzy, weight and fulness in top of head, dull pressure in top of forehead down to temples, as though it would burst; dull pressure in head on rising up from sitting or lying; sometimes throbbing in head, worse on moving and stooping, transiently relieved by compressing head with hands. Reading increases the headache. Pressive pain over eyes and round eyes, relieved by external pressure with hands. Pricking itching round eyes on eyebrows, lids and eyes themselves, worst on l., especially in inner canthi, with inclination to press or rub the eyes strongly; at same time a sore pain on borders of lids and in canthi and eyes, quivering of l. eyeball. All d., feeling as if there was mucus in eyes, especially in l. Full feeling in eyes and weak sight. Behind l. ear, a pain similar to that over the eyes. Violent drawing from nape to behind l. ear, spreading on l. side of head. Very tiresome pains in gums. A quantity of vesicles and small sore red places on tip of tongue and l. border of tongue. Raw feeling in throat, with frequent inclination to hawk. Occasional roughness and sensitiveness in larynx, soon after smelling poison. In upper part of chest sometimes pressive pain, sometimes sharp stitches through chest. Rheumatic stitches on r. side of nape. Stiff neck. Pressure under scapulæ, where it is painful when moving. Stiff feeling in sacrum. When drawing off boots and stockings, e., the feet often swollen. Very disagreeable sensation in bladder with forcing down upon the sphincter, and such frequent urging to pass water, that not only must he urinate many times during d., but must rise 10 or 12 times at n. to do so. When urinating, burning and sore pain, uneasy feeling in spermatic cords. Very restless sleep, wakes often at n.;

constant dreaming. Nervous restlessness, especially last half of n. Has not the slightest refreshment from sleep, brain seems to have no rest d. or n. Busy dreams full of care and trouble. Often felt as if flying away in the air. One n. after taking a dose for trial was plagued the whole n. with an artificial flying machine, the wings of which he tried in vain to set in motion. On 3rd d. of last trial, had a very contrary, irritable and angry humour, so that nothing could be done to please him. Everything was wrong for him, though he had had no cause to get out of temper. (*Ibid.*)

5. C. KINDERMANN, medical student, 16th April, 6.15 a.m., took 12 dried bee-poison bags at once. On the places where the bags softened the taste was narcotic, astringent, and irritating. After 2 to 3 m., there came a taste exactly like that of sweet almonds; 15 m. later a dull compression on both sides of forehead from supra-orbital border to frontal sinuses, not amounting to pain. This lasted till 8 a.m. at breakfast. After this it went off and no other symptom showed itself. (*Ibid.*)

6. Dr. W. HELMUTH took, in 2 provings, 80 drops of a tincture made with the poison of 10 bees in 100 drops of alcohol. After 1½ h. raw feeling in throat, with thick viscid saliva that adhered to hard and soft palate and tongue, at same time weakness and ill-humour. This lasted ½ h., then a dull heavy pain in r. parietal protuberance and soon afterwards violent eructation of wind. The headache was not relieved by pressing on it. Next came shootings in forehead and temples; numbness (or insensibility) of fingers especially about roots of nails; rumbling in belly, with urgent call to stool; burning in face with sensation of fulness as if blood-vessels were too full; dull pain all over head, relieved by pressure; nausea, vomiting of food and diarrhœa; the fæcal evacuations lumpy, not very fœtid. Drowsiness; weakness; vomiting of bile; the diarrhœa continues with some tenesmus; the vomiting recurs, the matter vomited is a thin, watery, very bitter fluid, with violent pains across hypogastrium; raw feeling in anus and almost incessant urging to urinate; burning in urethra while urinating, and slight feeling of stricture near the bulb of the urethra. Great desire to sleep. Very distinct numb feeling at finger-tips, and sensation as if the finger-nails were loose; dysenteric stools with much tenesmus, and after stool sensation as if the bowels were bruised; increasing weakness with diminishing headache. Sore feeling in stomach and belly. Extreme sleepiness. In n. sleep woke four times with great thirst for cold water. (*Ibid.*)

7. Dr. BIGELOW proved tinct., manner not stated. Dread of death, or sensation as if he should not be able to breathe again; weight and fulness in upper head; burning and throbbing in head aggravated by motion and stooping, temporarily relieved by pressing head firmly with hands, with occasional sweat for some h.; oppressive headache when in warm room and reading; violent aching pains through temples; sensation of whirling around in sight, with difficulty of seeing at same time, lasting a moment only; hurried and difficult respiration, with fever and headache (2nd d.); short rapid breathing at n.; pulse 95, full and strong (2nd proving); occasional feeling of chilliness, with dispo-

sition to yawn; slight rigor soon passing off, followed by fever at n.; sweating and dryness of skin alternating. (*Hom. Provings*, ed. by METCALF, 1853.)

8. *a.* Dr. BISHOP proved tinct. Dull heavy feeling, inclining eyes to close, desire to rub and press them forcibly; yellow watery diarrhœa, with griping; bearing-down pain as in early stages of parturition, in several cases; sensation of soreness in chest, pains, bruised feeling, as if jammed, bruised, or beaten in some recent accident; sensation of melting heat in region of diaphragm, as if from running violently; sudden flush of heat over back, as though sweat would break out, accompanied by pain at l. sacro-iliac junction; sensation of burning heat and stinging at various portions of surface at same time. (*Ibid.*)

b. Same physician records the following case:—Miss R—, æt. 40, for pain in ovarian tumours of some standing, without pain or fever, took 3 dr. of 2nd dil. *in dosi refractâ*, followed by 1st in same manner. Effects (which began before 1st dil. was taken) were as follows:—General headache, very severe, with great sensation of pressure or rush of blood to head; throbbing, painful, burning sensation in temples; smarting burning in eyes, conjunctivæ much reddened, great sensitiveness to light; peculiar burning heat of face for 24 h., followed by somewhat livid and purplish appearance; severe burning pain under short ribs on both sides, most severe on l., lasting there more than 2 weeks, during which she could hardly sleep; greenish-yellow slimy diarrhœa, perfectly painless, coming on about 24 h. after 1st dose, and lasting 1 d., during which she had twelve motions; urine diminished one half, though scanty before taking medicine; severe scalding in urinating; feverish heat, increasing for 36 h., then followed by severe shaking chill at 5 a.m., in which she felt very cold but was not so to touch. (*Ibid.*)

9. Dr. HAYS proved tinct. Dull ache in occiput; slight agglutination of eyes in m.; jumping pain in upper l. molars; violent eructations, tasting like yolk of eggs; nausea, as from throat; pricking pain in stomach as from needles; in abdomen rumbling, as if diarrhœa would come on; sore feeling in m., when sneezing or pressing on it; dull pain; sickly feeling, disposing one to continue in sitting posture; throbbing in rectum; sense of heat and stuffing in anus; loose lumpy stool; loose urgent stool in m.; sensation in rectum resembling an electric shock, slightly painful, followed by urging to stool; stool natural, but preceded by emission of flatus and a small quantity of almost colourless water, containing lumps of jelly-like mucus stained with blood; stitch-like pain in urethra; hoarseness and rough voice; stitches in l. chest, under heart, and at n. through chest and back; slight oppression of chest, with frequent desire to draw long breath; dull pressure under scapula, with sore feeling on moving parts; slight sense of stiffness in nucha and small of back; dull pains apparently in bones of legs, arms, and fingers; sore feeling of flesh of legs, leaving while walking, returning while sitting; prickling all over body, most on palms and back of hands, face, and forehead, chiefly at circumscribed spots. (*Ibid.*)

10. Dr. KELLOGG proved tinct. On 3rd d. sense of dulness in

forehead just over eyes, and sudden darting pains in l. elbow of brief duration; on 4th d. odour from axillary glands becomes much increased and very penetrating; on 5th d. somewhat frequent desire to urinate, with uneasiness in spermatic cord; on 6th d. this aggravated, with burning in urethra; at n., on removing boots and socks, feet were found highly swelled, with sensations of weight and stiffness, upper parts of feet were bright red, felt rigid and itched; soles and balls of toes had painful sensation of fulness, and in walking gave sensation as if cushioned.* Prover had also transient darting pains in external malleolus of l. ankle for 4 d.; and his stools were soft and pappy, seemingly mixed (as if beaten up) with serum of orange colour. (*Ibid.*)

11. Dr. WELLS seems to have taken a drop of 3rd every m. for 3 d. On 1st d. heaviness and pressure in head set in 1 h. after dose, and lasted 3—4 d.; also itching and prickling of lids of r. eye; dryness and heat in throat and prickling heat on tongue; general sense of heat, worse in chest and stomach; sensation of fulness, tension and pressure in chest; dull aching pains in l. chest near middle of sternum, several times with sense of fulness in chest and short breath; burning of feet; itching pricking of skin on different parts, most on legs, throughout d.; pulse increased from 65 to 77. At n., heat with agitation, frequent waking, and dreams with vexatious cares about business. On 2nd d. dull heavy headache on rising, continuing till 3 p.m.; dryness in mouth and throat, tongue feeling as if burnt, and in m. copious accumulation of soapy saliva; more frequent inclination to urinate, with some burning before and after emission; in m. still burning heat in chest and stomach; blotches on body and backs of hands, with stinging as from nettles; general feeling of lassitude. On 3rd d. urine high coloured, scanty, and frequent, with burning as before; boring pains in temples set in, and continued for several d. at intervals. Prover also notes: Loose stools 8 d. in succession; pain near heart at n., almost arresting breathing, continuing for some d. at intervals; disagreeable dreams about friends; sensation as of movement from place to place, mostly travelling by rail; general sense of lassitude with trembling. (*Ibid.*)

12. SWAMMERDAM says that he tasted the poison of the queen bee. First he noticed a bitter taste, which subsequently became more acrid and pungent, and spread through the whole buccal cavity to the jaws and caused a flow of saliva. The tongue was affected in the same way, only less, as after chewing Anthemis pyrethrum (P. officinale). There was also observed a great movement in all parts of the mouth, as though he had taken 10 or 12 dr. of the strongest alcohol. He afterwards tasted the poison of other bees and wasps. It had the same effect, only the poison of the worker-bee was much milder than that of the wasps. (*Amer. Arzneipr.*, p. 252.)

13. 8.15 a.m. Health good, pulse 65, took 10 drops 2x in ½ oz. of water. Soon itching of scalp, extends to face and neck. 8.20. Lachrymation and watery nose, itching continues. 8.25. Repeated eructations, thick mucus in pharynx, itching extends to thighs and hands. 8.35. Drawing in l. biceps. 8.47. Desire to urinate, ringing

* Symptoms of 6th d. are said to have been "from large doses."—EDS.

in r. ear, much mucus in throat, itching at intervals. 9. Pulse irregular in frequency, 62, ache in r. ulnar nerve, cramp in r. arm, occasional eructations. 9.15. Occasional sneezing and watery eyes. 9.22. Stitching or pricking pain in r. nipple, extends into lung. 9.35. Urinated, urine strong odour (unusual), stinging in r. caruncula, eyes watery. 9.45. Chilliness while eating, much eructation after; drawing in r. arm with burning of anterior surface. 10. Stinging in r. palm, after in region of heart, usual stool and urine. 10.10. Fulness and aching in r. testis, sharp pain in r. temple, followed by mental depression. 12. No appetite for lunch, scant urine, occasional stitches about heart, cramp in l. shoulder, mental depression continues. 12.30. Shooting pain deep in pelvis, soreness of l. testis. 4. Urging to urinate, u. scant and dribbling, cold, damp feet, sexual excitement without cause. 5. Hot face, cold feet, urging to urinate returns, sneezing, pulse 72. 6. After moderate meal, distension of abdomen and dyspnœa when lying down, strong desire for stool, passed flatus freely, urinated freely. 10. Excited brain, febrile heat, pulse 80, flushed œdematous face, sneezing at intervals, with considerable lassitude; urinated scantily three times during n. (unusual). (*Communication* from A. W. Woodward, M.D.)

II. *Poisonings.*—1. Alexander S. Baker, farmer, æt. 25, of light complexion, brown hair and blue eyes, robust constitution. Had always been accustomed to work among bees; had been stung repeatedly; never with any serious effect, except slight swelling, which disappeared after a few h.

a. In August, 1858, was stung upon the tip of the nose. It instantly struck through his whole frame like an electric shock, thrilling both ends of his fingers and toes. He immediately started for the house, distant about three rods, which he reached with difficulty, being scarcely able to walk, staggering; mind bewildered; head felt big, confused. Upon reaching his home the heart palpitated violently, so as to be sensible to himself and audible to those in the room; faintness, "death-like" prostration, which continued half an h., accompanied with intense anxiety and "distress" at stomach, oppression of the chest, dyspnœa, short rapid breathing, pulse accelerated; nausea, followed by yellow and bitter vomiting at 45 m. after the accident. At this time had a chill, with shivering, accompanied by a terrible racking pain all through the head, with increased prostration; no pulse at the wrist; blood settled under toe- and finger-nails; ears purple; jactitation of the muscles; complete loss of consciousness, followed, after half an h., by flushes of heat, mixed with chills. Skin extremely sensitive to contact; painful to the slightest touch; could not bear the sheet upon him; red and white blotches over the body and extremities, like nettle-rash. After the lapse of about 3 h. he recovered his consciousness, and the headache gradually disappeared, leaving him much prostrated, unable to concentrate his mind, with confusion when attempting to read or study, lasting some weeks, attended by frequent attacks of vertigo and blindness.

b. In September, 1859, the same man was again stung in the same region, producing the following symptoms:—Sudden prostration, with

coldness ; pulseless at wrist for 20 m. ; rapid feeble beats of the heart ; dyspnœa ; it seemed impossible to breathe ; "had to fan him to keep him alive," said his father. This was succeeded by hot flashes, nausea, vomiting, and copious watery diarrhœa, twitching of the muscles, rash, red blotches, with great sensitiveness of the skin to contact. This sensitiveness of the skin extended all over the body. Bursting, expansive pain in the head, attended by vertigo and confusion of the mind ; was unable to think clearly or express himself. Drank about half a pint of diluted alcohol, as an antidote, without experiencing any intoxicating effect. The critical symptoms disappeared after three or four hours, leaving him much prostrated, from which he was a long time in recovering. Has not been able to endure hard labour since ; is affected, upon exerting himself, with headache, expansive pains all over the head, vertigo, and palpitation. (*N. Y. St. Hom. Soc. Trans.*, iii, 104.)

2. Miss — was stung by a bee on r. neck ; a few m. thereafter she experienced sensation of heat and stinging extending over whole body. Face became much swollen, and eyelids puffed up ; lids everted. Sickness at stomach and pain over whole body, latter so severe as to occasion crying. Body covered with large wheals, slightly raised, and quite white ; interspaces being deep scarlet. Pain in head and eyeballs ; mouth very dry ; throat constricted, as if something were lodged there ; deglutition painful. About a week later, when symptoms had subsided, patient had an attack of nettle-rash. (*Ibid.*, N. S., i, 152.)

3. Mr. — has frequently been stung by bees. In 5 or 10 m. he feels, as first symptom, a heartburn ; he has also experienced frequent and long-lasting erections as an effect. (*Ibid.*)

4. A girl, æt. 25, was suddenly attacked, without known cause, by the following symptoms :—Face bloated, cyanotic ; respiration slow, difficult ; commencing pulmonary œdema ; sensorium confused ; pulse small, quick ; extremities cool. All r. arm was swollen, and cubital, axillary, and cervical glands on that side enlarged. On offering water, which patient urgently demanded, sudden convulsions, with expression of utmost anxiety in face, as in hydrophobia. Convulsions also occurred when physician accidentally took hold of forefinger. In middle of this finger a bee-sting was observed sticking, surrounded by a small red areola. On removing this, convulsions ceased, and therewith dread of water. Patient rapidly recovered, and next d. was quite well, save for weakness. She said symptoms commenced almost immediately after being stung. (*Allg. hom. Zeit.*, xcvii, No. 5.)

5. After a sting on the eyebrow, sudden sinking of the vital power, violent vomiting, copious diarrhœa, cold limbs, pale face, violent, cutting pains in abdomen, pulse weak, scarcely to be felt ; no redness or pain at the place where the sting was made, only after the other symptoms had gone some redness of the stung point was seen. (Bishop, *Am. Arz.*, p. 230.)

6. A boy, æt. 7, when playing, was stung by a bee on the finger. Some chilliness all over, felt very unwell, had to go home and lie down. On undressing saw eruption of nettle-rash all over, that itched much. (Raue, *Ibid.*)

7. After a bee-sting on finger there came a red place with some

swelling and a painful stripe along the arms, in course of lymphatics, and sickness even to vomiting. (HERING, *Ibid.*)

8. A girl, æt. 10, who had often previously been stung by bees without anything following but burning pain and redness, was stung in the neck under the maxillary bone. In ½ h. she began to feel burning and pricking in hands, especially palms, which got very red. Cold water relieved the burning. The same sensation soon spread on whole face, which got very hot and red ; she had also nervous restlessness, so that she could not remain in one place, and the tears came into her eyes. The upper lip was so much swollen as though it were turned inside out. Countenance so much changed that she could hardly be recognised. Soon the burning spread to the feet and was now all over body. When undressed she was found to be covered with red places the size of a hand, as though they had been scalded. This was 40 to 50 m. after the sting. She had a severe rigor, though it was a warm day. The face remained swollen. She complained of great anxiety in head, and the whole nervous system seemed much affected. After sleep gradually became better, and next m., 18 h. after sting, was well. (LANGSTROTH, *Ibid.*, p. 231.)

9. A boy, æt. 10, was stung by a bee on r. commissure of mouth. At once feeling of general numbness, and after a few m. the most violent itching like needle pricks, had to rub the whole body with cloths in order to allay it, After rubbing he was observed to be covered from head to foot with small, white spots, as after gnat-bites. This lasted ½ h., then swelling was considerable. In a few h. the r. eye was completely closed and the l. nearly so. Cheeks and nose were on same level, chest like a great board, the lower part of the cheeks hung down towards chest. The swelling lasted several d. (COXE, *Phil. Med. Museum*, N. S., i, 150, 184, quoted in *Ibid.*, p. 232.)

10. A man, æt. 26, was stung by a bee on the cheek, but felt no inconvenience. A quarter of an h. afterwards he was stung on the lower surface of the tip of the nose. He suddenly felt an indescribable sensation through the whole body, with a pricking feeling, and white and red spots on the palms, arms, and legs. At the same time tears flowed involuntarily from the eyes, the nose and face swelled, he became hoarse, lost his taste, had pressure in scrob. cordis and difficulty of breathing. On the way home, about half a mile, he felt a great desire to sleep, with increasing dyspnœa, and on reaching home his face, neck, chest, and limbs were considerably swollen, and the other symptoms had increased. He drank a little water in which salt was dissolved, and dabbed his face with it. Soon afterwards he had a rigor with cold limbs and nausea. He got 10 gr. Dover's powder and several doses of the expressed juice of plantain, also a lotion of plantain and lettuce. Plantain leaves were laid on his face, and in about an h. the symptoms began to abate. The swelling of the face lasted several d. and the prickly feeling returned after exertion for several weeks. (JAMES MEASE, *Am. Journ. of Med. Sc.*, Nov., 1836, quoted in *Ibid.*, p. 236.)

11. A woman was stung by a bee between the mammæ. In about 10 m. the toes of both feet felt too large, swollen, and stiff. Soon

the same sensation came in the head; it felt so large she looked in the glass to see if it were actually swollen. Then the whole body felt too large. She felt so queer that she lay down at full length on the ground, she knew not why, because she did not feel so faint, only so queer, that she thought she should die. She was bled, but without relief, then she got ammonia and laudanum and felt better, but the whole abdomen was covered with very elevated long stripes. (HERING, *Ibid.*, p. 239.)

12. A man was stung by a bee in the l. testicle. The part swelled to such an extent that there was scarcely room for it in the scrotum, with tensive feeling and the most violent itching. Soon afterwards the whole l. side of the body swelled, first in the joints, where lumps appeared which looked somewhat inflamed and itched violently. The cervical glands also on the stung side were swollen. Soon after the sting he felt a faint sick sensation under short ribs and all over abdomen. This lasted 3 h. At same time dull heavy pain in sinciput and sides of head, relieved by pressing with hands. (RAUE, *Ibid.*, p. 242.)

13. A woman was stung by a bee on the temple. Immediately she got pain in teeth, trembling and working of lips and tongue, dyspnœa, retching, several fainting fits, whereon perspiration broke out all over and an urticarious rash spread all over the body; then rigor, copious evacuation of blackish-brown, green, and white fæces, stitch in the side. Next d. well. (MÜLLER, *Med. Correspondenzbl. d. Würtemb. ærzt. Ver.*, ix, No. 3, quoted in *Ibid.*, p. 243.)

14. A robust man, æt. 35, was stung by a bee on the top of his head. He felt no pain on the place. In 20 to 30 m. his tongue swelled,* then his face, especially about eyes; the swelling then extended all over the body. The swollen tongue prevented him speaking, and soon his breathing from the same cause became so difficult that the doctor found him in danger of suffocation about 45 m. after the sting. The breathing was gasping and difficult like that of a child with croup. The whole body was covered with wheals, but without change of colour, indeed the wheals were whiter than the rest of the skin. The upper eyelids hung down over the eyes on to the cheeks. He could not put out his tongue, could not swallow a drop nor speak a word. He was bled to 20 oz. and was soon relieved. (*Philadelphia Public Ledger*, 22nd June, 1852, quoted in *Ibid*, p. 243.)

15.—*a.* A middle-aged man was stung behind l. ear. Shortly after a sudden dizziness came over him, and his head became so full that he thought he was going to have a fit. These symptoms were followed by rigors; when he felt so ill and weak that he at once undressed and went to bed, not without considerable assistance. He made a fruitless attempt to urinate, and thereupon followed the state of skin to be described.

b. "I found him in bed, very anxious and alarmed about himself,

* "There is scarcely a remedy that has such marked symptoms of glossitis as Apis. In one case of poisoning the inflammatory swelling was not the result of a sting on the organ, or of the introduction of the poison into the stomach, so that the inflammation might be accounted for by local action; but it occurred after a sting in the temple, showing that the virus had a specific effect on the tongue." (BÄHR, *Soc. of Ther.*, tr. by Hempel, i, 313.)

although at times he was in a half unconscious state, and slightly delirious. He was swollen all over, but more especially about face and neck, abdomen, and limbs. The entire skin was covered with a red rash, very much resembling scarlatina, only, if anything, of a less bright colour and somewhat rougher to the feel than the common type of that exanthem (the smooth scarlatina of Sydenham). The skin was hot and dry, the breathing oppressed, and the pulse quick, but somewhat weak. He complained of fulness and confusion in the head; the face was flushed, and the eyes suffused." After camphor and belladonna, speedy improvement ensued; he passed an unusually large amount of urine; gentle diaphoresis followed; and the swelling subsided as rapidly as it had arisen. After some h. sleep, all traces of the indisposition had vanished. (CHEPMELL, *Hints for Study of Homœopathy*, p. 135.)

15. A boy of 10, while dressing after bathing in a river, was stung on r. hand by a "yellow-jacket;" immediately commenced itching and burning all over, and when he reached home "was all broke out." He was found covered from head to foot with elevated circular and oblong patches, which soon ran together, forming an entire blotch over back, arms, and legs. Eruption on its first appearance was white, but on rubbing parts would become pinkish. It was accompanied with intense itching, stinging, and burning, causing continual scratching and rubbing. Patient was otherwise quite well, and pulse was but slightly quickened. Under Ledum 5 eruption soon subsided. (*Hahn. Monthly*, Sept., 1875.)*

16. In Oct., 1875, a child was stung by two wasps in r. supra-orbital region. The stings caused no inflammation, and soon healed; but, some d. later, her father brought me the little girl, who had lachrymation, with a little redness and burning, of l. eye. Towards its centre the cornea presented a whitish patch extending some millimetres: the sight was naturally obscured. Merc. sol. was prescribed, and in 10 or 12 d. a cure was effected; but some d. later a new opacity appeared in l. eye, which departed under same treatment. (Dr. CASAL, *Bull. de Soc. Hom. de France*, xviii, 112.)

17. I am 37 years old, nervous, of sanguine temperament, and have good health. My voice has always indicated rather weak bronchial organs. Never had a cough, however, before I experienced bee poisoning. I began bee keeping on a somewhat extensive scale in the year 1878, and it has been my sole occupation ever since. I have had as many as 550 colonies in the apiaries at one time. Seven years ago I began to notice an itching sensation in the ears. This would come on at times; and after about two years it extended to the glands inside the mouth, and near the root of the tongue. After about one more year the sensation began to be very severe in the roof of the mouth, just around and in front of the palate. It was at this time that I first discovered that the affection had a connection with the bees. To sweep the floor of one of my rooms where bees had fallen and been trodden upon was sure to bring on this sensation at once. Next I

* This case and the following have been introduced to show the identity of effect between bee-stings and wasp-stings, in view of the clinical experience in favour of Apis in inflammation of the cornea.—EDS.

found that to open a hive and breathe the odour of the bees (especially if not thoroughly subdued) would also cause the trouble. But business must be attended to, and I persisted in working among the bees and bee-hives till the itching and tingling sensation crept down the bronchial tubes all around about the lungs. One n. after a day's work among the bees I woke up about midnight with the asthma. I was not sure then that bee poisoning was the cause. Finally, I began making tests. Leaving the whole business for two weeks I was almost entirely clear of all except the first symptoms in the ears, which only troubled me occasionally. The first breath of bee poison I inhaled on my return was followed by all the former symptoms, seemingly in an increased degree, and in 10 m. my throat turned red, and clearly showed severe irritation. I resolved to hire more help, add to the business of honey production that of manufacturing and selling bee-keepers' supplies, and in that way absent myself from contact with the virus to a greater extent, and yet keep busy. I have done so, and am in consequence quite free from the trouble most of the time. But if I at any time come in contact with the poison my symptoms seem to be as radical as ever, yes, even more so. I will cite one instance. All apiarists know that often when a maddened threatening bee flits around one's head it discharges into the air its poison. It is recognised by the nasal organs only. Now, I have found that this occurs when none of the five senses of the healthy bee-master recognises it. One d. last autumn, after I had kept from all contact with the poison for some weeks, and had no troublesome symptoms, I stepped into my yard, when an ugly bee passed within about eight inches of my face, discharging poison as it passed. About one half hour after I was seized with perhaps the most severe paroxysm of my experience. First symptoms were an almost unbearable itching, tingling sensation of the roof of the mouth, and so on down the breathing tubes as far as they extend, then an asthmatic filling-up sensation. For more than 8 h. I could not speak aloud. For 2 or 3 d. I could not raise my voice above common conversation. All passed off, leaving me as well as ever, by keeping away from the poison.

In correspondence with one Italian and one German of large apicultural experience in the old countries I learn that such cases are known there. (JAS. HEDDON, *Hom. Physician*, April, 1882.)

APOCYNUM ANDROSÆMIFOLIUM.

Apócynum androsæmifolium, L. Spreading dogbane. Nat. Ord., *Apocynaceæ*.

I. *Provings.*—1. Dr. J. H. HENRY and two ladies proved a strong tincture of fresh root simultaneously. All were in good health. "We first took 50 drs., fasting, in m.; two of us had cramps in soles, third violent heat there with profuse general sweat. On 15th each took 100 drs.; all felt cramps and burning in soles, most in my r. foot, with great pain in joint of l. big toe and heat in r. leg and knee. One lady with myself complained of great fulness with indescribable pain in head. Next m. bowels of all costive. On 16th 150 drs; same symptoms as on 15th, tingling pains in my toes, trembling of body of two provers, most delightful taste in

mouth of each, everything smells like honey to me, all complain of pains in different parts of the body, much pain in my r. knee and shoulder. The ladies complain of pain in all teeth of l. lower jaw. On 17th 200 drs.; I alone felt cramps in soles; all other symptoms felt as on 16th; pain and stiffness in back of head and neck; dull boring pain when breathing, seems to go from above downwards. On 18th 250 drs. Bilious painful diarrhœa in myself and one of the ladies. On 19th 300 drs. Heaviness of body with great desire to sleep; flying pains all over; pain in head and back of neck; swollen sensation with violent itching of face and body. On 20th each took 350 drops. All above symptoms felt; profuse flow of clear urine; pulsating pain in back of head and between r. hand and elbow; constipation in two; diarrhœa in the third with much pain and rumbling, only two evacuations, but large, giving much relief. On 21st each took 400 drops. Much pain all over head; stiffness of neck; pain on turning to l. side; itching and burning of face; most violent pain in all joints; great itching in l. nostril. On 23rd 500 drs. Violent pain in l. zygoma; chilliness, lassitude; heat of head and neck; cannot sleep at n.; vivid dreams; sleep not refreshing; shooting pain in l. groin. On 24th 550 drs. Profuse menses, lasting 8 d., with violent pressing pain; other symptoms as before. On 25th 600 drs. Some flying pains in stomach; fulness and pain in r. side; increase of all other symptoms, with great pain in all l. side of head and above each wrist. On 26th 650 drs. Some efforts to vomit; pain increased in back of neck, extending to front; worse also above wrists; one prover had four bilious evacuations, another two, the third was constipated. On 27th 1800 drops. All sick, with vomiting, purging, great prostration and trembling of body. (*Philad. Journ. of Hom.*, iii, 369.)

APOCYNUM CANNABINUM.

Apócynum cannabìnum, L. Indian* hemp. Nat. Ord., *Apocynaceæ*.

I. *Provings.*—1. Dr. MARCY took, for 6 d., 5 drops 3 times daily of 3rd dil. No unusual sensations were observed until 5th m. of proving, when on walking he felt a sinking at stomach, dryness of mouth, thirst, nausea, irresistible disposition to sigh, short and unsatisfactory respiration, short and dry cough, scanty expectoration of white mucus. These symptoms continued during d., and on retiring there was in addition unusual heat of skin, general restlessness, and desire to sleep without ability to do so. During entire d. urine was natural in quantity and reaction. The n. was one of great restlessness and little sleep. Next m. unrefreshed, and with symptoms as on 5th d.; but urine was diminished in quantity, though normal to all tests. Symptoms of 7th d. and n. were a continuation of those of 6th. On 8th d. stomach and chest symptoms had lessened; urine had increased in quantity and was much lighter than usual. On e. of 8th d. he experienced an unusual heaviness of head, with aching pains in small of back and limbs: no tenderness of renal region on pressure, but slight soreness there on bringing muscles into action. From 9th to 13th d. symptoms gradually declined. (HALE, *New Remedies*, 2nd ed.)

2. *a.* Dr. PETERS took half-wineglassful doses of Hunt's decoction of A. 3 times a d. for a week. For first few d. no perceptible effect, save increased tendency to constipation, and decided scantiness of urine, with more flatulence than usual and slight uneasy sensations in

* *I.e.* American Indian: not to be confounded with Cannabis Indica, the hemp of Hindustan.

bowels. About 4th d. decided distension of upper abdomen began to occur, especially after (moderate) meals; oppression of chest was sometimes so great that he felt he had hardly breath enough to smoke a cigar, or to speak with any comfort. Urine diminished to ⅓rd of usual quantity, flowing sluggishly, of light golden sherry colour, without sediment; weather was cold, and his kidneys usually acted freely and frequently. Bowels were sluggish, and fæces scanty, but not hard: no diarrhœa occurred, even from wineglassful doses. No change in pulse. Occasionally sinking at epigastrium, with transient sense of general debility. Hard aching felt several times in both knees, as if rheumatism would come on. He would wake up in m. with nostrils and throat filled with thick yellow mucus, as if in second stage of catarrh (of which he had no other symptoms). Once woke early with severe irritation of l. eye, as if several sharp grains of sand were in it, with much heat and redness; after lasting several h., symptoms disappeared as suddenly as they had come on. Once during e., and twice in different n., sudden and violent attacks of hard and frequent coughing lasting 1—2 h., then ceasing without leaving trace of cold behind. On d. after ceasing use of drug, loose, but not very copious, bilious stools, and urine as abundant as in health.

b. Later, another proving was made with 1 or 2 wineglassful doses, two pint bottles being taken in a week. Scanty discharge of urine recurred, but none of the other symptoms. "It is right to add," Dr. Peters says, "that during the first experiment I was very stout, and had recently recovered from fever and ague, which may account for the oppression of the chest and flatulence; I am also often subject to protracted attacks of constipation." (*North Amer. Journ. of Hom.*, iv, 529.)

3. M. L. Knapp made infusion of powdered root, 15 gr. to cupful of warm water, and took 2 tablespoonfuls every 15 m. In ¼ h. slight nausea; in ½ h. efforts to vomit; in 1¼ h. vomited slightly; pulse now 50, felt weak and sleepy, and went to bed. After sleeping about 1 h. woke with extreme sickness, followed by two spells of free vomiting; pulse between attacks 45, but no death-like sense of prostration. He felt stimulus of drug passing into intestines; had a gentle movement next m. without griping, and bowels were kept "soluble" for a d. or two. Prover experienced also headache and bewilderment; had increased secretion of mucus and saliva in mouth and fauces, which kept him constantly spitting; his urine was augmented. (Allen's *Encyclopædia*, i, 426.)

4. *a*. Dr. W. T. Helmuth took ʒss of tinct. of fresh root. Soon feeling of nausea, commencing at throat and extending to stomach, continuing nearly 1 h., without inclination to vomit, but with accumulation of saliva and constant hawking of thin fluid, after which throat felt dry. Fancy became exalted, with flow of good spirits and satisfaction with everyone; in 1 h. this gradually died away, leaving pain in forehead, particularly above superciliary ridges, heavy and drawing, with throbbing of ant. temporal artery; also great drowsiness, with drooping of eyelids, and at times rumbling with darting pain in hypogastrium. At noon, these symptoms having almost disappeared,

took ʒj, with same effects, but to increased degree, and also frequent and copious urination. On waking next m. severe bruised sensation in all limbs, especially the joints, and in small of back, almost disabling from motion: it disappeared, however, after walking. Bladder felt much distended, urine hot and turbid, depositing thick mucous sediment; after micturition, burning in urethra for ½ h. All d. throbbing headache in vertex and forehead; vertigo when rising, but particularly when yawning or stretching; pain at times in l. eye as if wearied, with drooping of lid; discharge of thin watery fluid from nose. Stool 4 or 5 times in d., soft and copious, with general feeling of relaxation. Urine copious throughout d., with same sediment as before mentioned, which was found to coagulate by heat. Tonsils and fauces for a d. or two seemed coated with mucus, which had dried upon them.

b. Dec. 15th, 10 p.m., took 1 dr. Slept as usual. 16th.—1 h. after breakfast same dose. Two h. after subsequent meals very distressing oppression at epigastrium, also sensation as of working in stomach, lasting about 2 h. Repeated dose at 9 p.m. 17th.—In m. before breakfast, 2 drops in water. About 10 m. later same distress at epigastrium, compelling walking about, which afforded some relief. Less effect produced by same dose in e., taken 3 h. after a meal. 18th.—Took same dose after breakfast: less epigastric distress to-day. At 9 p.m. 5 dr. Soon after working in stomach, with empty eructations giving relief; also slight pinching pains from r. to l. 19th.—In m. and e. 5 dr., 2 h. after meals. Slight epigastric symptoms as before. 20th.—Same result from identical m. dose; in e. took 10 dr., after which rumbling, working and pinching were more marked, and there was sensation as of a ball being pressed into pylorus. Symptoms gradually disappeared during next 2 d. (*Ibid.*, x, 308.)

5. Dr. Louis Faust, æt. 21; normal pulse 66; urine 30 oz., sp. gr. 1028°; proved infusion of tops of fresh plant. July 20th, took ʒss with no effect. 21st.—At 8.15 a.m. ʒj. Soon after, slight and transient nausea. At 11.10 burning pain in stomach, with uneasiness; and shooting pain in r. ear for 1 h. Urine for 24 h. 40 oz., 1020°. At 4 p.m. ʒiss. 22nd.—Took none. Urine 36 oz., 1022°. 23rd.—At 5 p.m. ʒij. Soon after singing partial deafness in l. ear for 1 h., with occasional sticking there. Urine 24 oz., 1025°. 24th.—Restless all past n.; temporal headache all this d., with heaviness and pain in eyes, as from over-use, which there has not been. At 4.30 ʒiiss. Urine 30 oz., 1028°. 25th.—Same heaviness over eyes. Has had ravenous hunger since commencing proving; gets hungry an hour before meal-time: bowels tend to be loose. At 7 p.m. ʒiij. 26th.—While at breakfast taken with violent pain in abdomen, continuing till he had a passage; stool very soft, painless; relief after it, but felt weak all m. Face pale, with cold perspiration; rumbling in abdomen. Urine 42 oz., 1024°. No med. 27th.—Very restless n. Uneasy feeling in abdomen, but no tendency to stool. Urine 23 oz., 1026°. 28th.—Great weakness in stomach; still bulimia; stool loose in m., but painless. Urine 24 oz., 1028°. Uneasiness and weakness in stomach increased up to gnawing on 30th: he felt as if constantly threatened with cholera morbus. These feelings, with the bulimia, did not leave

him till Aug. 2nd; though stools (and urine) were normal. On this d. took ʒiiss, with effect only of slight and transient nausea, and peculiar sensation in chest, causing him to sigh constantly. (*Ibid.*, p. 309.)

6. *a.* Mr. Byron E. Mead, student, æt. 24; pulse full, strong, 73; proved cold infusion of fresh root. June 19th.—Took, at 10 p.m., ʒss, without result. 20th.—At 7.30 a.m. ʒj, before breakfast; at 8.30 ʒj more. About 1 h. after last dose felt sick, with inclination to vomit; also frontal headache, pains darting from temple to temple; at times vertigo, as if he would tumble over, coming quickly and passing away as suddenly; dull, unable to think well or concentrate thoughts. At 11 another ʒj. Symptoms same, but more nausea.

b. At 1.30 ʒij of hot infusion of root. At 2.20 taken suddenly with intense tenesmus, and great and hurrying desire for stool, which was large and light yellow, accompanied by rumbling in bowels and flatus; after it considerable nausea and frequent desire to vomit. At 5 another large stool, with similar symptoms; also frontal headache, with sharp darting pains; pain in r. scapula; general muscular weakness; feeling of lassitude. At 6 ʒij. After taking dose went to dinner, and whilst there came sudden desire for stool, which was exceedingly large, light yellow, fœtid, and flatulent as before. Same frontal headache; constant flashes of heat; face looks flushed and hot; some embarrassment in breathing. Hungry all the time; could eat every h. in d.; relishes all kinds of food, and seems to digest them well. Rheumatic pains in joints; increased action of heart, fluttering at times as if it would escape from chest. 21st.—Good n., feeling well. At 10.30 a.m. ʒij. An h. after same action on bowels, with endless flatus; vertigo, without headache; pain and weight over eyes; general lassitude of mind and body; burning and powerless feeling at anus. At 1.30 ʒij. Stool as usual in ½ h., preceded by intense pain in bowels. Urine burns in passing; head the same; some pain in r. scapula and muscles of r. forearm. Great craving for dinner at 6.30, hardly satisfied by full meal; another stool; soreness and bearing-down in rectum.* 22nd.—Good n., but felt weak and sore and was unrested next m. Similar stools (5 in d.) and rectal sensations. Pain in joints nearly all d. and frontal headache. Till 25th 4 stools, loose and flatulent, daily.

c. 25th.—Took, at 10.30 a.m., ʒij of cold infusion of tops. In 1 h. nausea and desire to vomit; frontal headache and vertigo. After lunch at 1.30 stool with usual character and accompaniments; same again at 3, very urgent and profuse; a third, small, at 6. Well next m.

His bowels continued loose for 2—3 weeks after proving, 2 or 3 stools daily; he had also bearing-down pain in rectum and weakness of sphincters. For months mere smelling at drug would make him feel sick. (*Ibid.*, p. 310.)

7. Dr. J. Clark, æt. 34, proved tinct. of fresh plant. Took ʒj doses 3 times on August 23rd, and every 2 h. from 8 a.m. on 24th.

* Urine on 20th and 21st was rather above the normal in quantity and sp .gr., but showed a marked reduction in urea (about 178 gr. as compared with 342 on average of previous week).

On latter m. vertigo on rising from stooping; in e., nausea almost to vomiting and slight headache; grumbling in bowels, followed by furious but painless diarrhœa, causing weakness. Next m. same vertigo and hiccup; abdomen felt as though he had drunk large quantities of water. Took medicine irregularly this d., feeling tired and poorly throughout and sick in e. Severe pain when walking in l. lower lumbar region. Three stools in d. 26th.—Took 3 doses from 3 p.m. onwards: much nausea, wanted to vomit but could not. 27th.—A few more doses taken up to noon. Several stools, thin, copious, lemon coloured, mixed with mucus; great weakness of sphincter ani, so that he cannot pass wind with safety; very sick all d.; covered with slight perspiration; weak and exhausted. 28th.—In m. mouth dry, tongue sticking to root of mouth. Some nausea and vertigo as before. Fæces again escaping when a little wind is allowed to pass; stools still quite watery, not returning to natural condition for 2 d. more. Several times when urinating hardly knew when he had finished. (*Ibid.*, p. 312.)

8. *a.* Dr. ALFRED MARSHALL, æt. 25, not easily influenced by medicine, proved cold infusion of root. June 19th.—℥ss at 9 and ℥j at 11 p.m. 20th.—℥j at 7.45 a.m. Increased appetite, even to hunger; smarting and burning in urethra when urinating. At 8.30 ℥j more. In 1 h. transient fulness in forehead and vertigo. Stool less copious and easy than usual. At 10.30, ℥j more. Dull frontal headache thence throughout d. At 2 pricking, tingling, and lameness in l. scapular region for short time. Through d. marked feeling of general muscular weakness. At 5 small, mushy stool, preceded by much flatus.

b. At 5.15 took ℥ij of hot infusion of fresh root. Dull heavy pain in both sides of face and nose, passing into forehead (worse on l.). At 7.15, urgent desire for stool; passage very soft, not fluid, brown, not offensive, painless. Great muscular weakness all e. At 9 and 10.45 repeated dose. Much flatus; and at 11 small and difficult diarrhœic passage. At 6 p.m. there had been great itching of back, sides, and limbs; and on going to bed he found his body covered with large papules as of urticaria, most numerous about loins and waist. Sleep very dreamful. Was hurried out of bed at 5 a.m. to have small, loose, flatulent passage from bowels, repeated every 20 m. up to 8. Increased appetite; eruption still present, but not itching; all m. dull heavy sick feeling in stomach and abdomen. At noon small watery stool (hitherto they had been pappy) with much flatus, followed by soreness of anus. Same at 2 p.m. In e. feeling of great weakness and prostration, especially in all muscles; eruption itching again, but less than before; pulsating in r. hypochondrium for some m., recurring several times. Slept well, and on 22nd stools were natural.

c. June 25th, at 11 a.m., took ℥ij of cold infusion of tops, which caused nausea and vomiting, but no further trouble.

d. Bowels continued to act (contrary to his habit) twice daily until first week in August; and he had constant weight and pressure at anus, so that after sitting 15 or 20 m. he would feel as if rectum protruded, and would be obliged to get up and walk about. He had then a

severe attack of inflamed piles, blind and protruding: after which all symptoms disappeared and he regained his usual health.

c. Urine here also showed diminished urea—gr. 287 from June 20 to 22 as contrasted with gr. 403 on average of previous 6 d.

9. *a.* Mr. EDWARD CHAPIN, student, æt. 29, proved tinct. of root. Aug. 13th, on retiring, took 50 dr. Considerable nausea when waking during n. 14th.—At 7.30 a.m. 60 dr. In 20 m. nausea. After action of bowels felt as though everything in him had passed out, and whole abdomen was empty: also sensation as if something were pressing up colon and through liver. Nausea increased, and he felt deathly sick, and had flashes of heat in different parts of body, and very marked piercing pains in r. temple, followed by vertigo. At 2.30 took 75, at 4 took 90, and at 8.45 took 100 dr., with nausea, and head symptoms as in m. 15th.—Stool on rising, accompanied and followed as before: with head symptoms ringing in r. ear. At 7.45 took 120 dr. Head symptoms continue; and at 8.45 another stool, profuse, mushy, yellowish; sphincter ani feeling relaxed. Headache now more general, dull and confused; whole system feels much prostrated. At 5 p.m. 200 dr., and at 10 ʒiij; some nausea before going to sleep. 16th.—Awoke before 5 with severe headache; bowels moved about 7 a.m., a very copious mushy stool, darkish brown, very fœtid; after it sense of "goneness," also tenesmus, hypogastric aching, and dull weight in head. At 7.45 took ʒiv. Severe sticking and piercing pain in r. temple, followed by dull feeling in whole head; great prostration, aggravated by motion; flashes of heat in various parts of body; pulse 88. At 11, 6, and 8, urgent stools, thin, frothy, expelled with much force, and followed as before. When micturating could hardly tell urine was passing; but at times it left burning and tingling in urethra. 17th.—In m. and e. very large loose stool with usual concomitants; sphincter felt paralysed, and anus open afterwards. 18th.—Two more such stools in m., leaving inclination as if more would come.

During days of taking drug (13th—16th) urine was slightly increased in quantity, as also urea; but sp. gr. was a little lower than normal. On 2 d. after omission everything was reversed. Characters and concomitants of stools continued till they became quite normal. Appetite was craving and palate keen throughout proving. For 2 or 3 n. had profuse perspirations; and while under influence of drug had more or less pain in back.

b. Made second proving of same, taking ℥ss of tinct. on Aug. 29th and 30th.—After 2nd dose (m.) fairly natural stool, but with usual concomitants; also flashes of heat followed by quite profuse perspiration, and much spitting of tenacious saliva and mucus. At 1.40 p.m. another ℥ss. Aching pain, at times sharp and sticking, in sacrum, occasionally in hip, knee, and ankle; darting pains in different parts of bowels; pain in r. temple, followed by confused and dull aching in head; vertigo at times, aggravated by ascending. At 5.15 same dose. Again perspiration and vertigo, also attacks of deathly nausea. After micturition dull pain about sphincter vesicæ, as if it tried to close, but could not. 31st.—Restless during n.; quite severe headache on waking. At 7.50 a.m. another ℥ss. Very large thin stool at 9, with

usual concomitants: pain again in knees, especially l. At 6 another ʒss: some nausea, head symptoms as before, with spells of marked vertigo. Stool next m. as before; return of vesical weakness. Pains in joints at times quite severe, also at inferior angle of l. scapula. These symptoms—greater activity of bowels, bearing-down in rectum, relaxation of sphincter ani, r. temporal headache, vertigo, pain in knee-joints, keen appetite—continued for some time: he also occasionally passed blood with stool; and had quick, sharp, catching pains in heart, with palpitation.

From Aug. 30th to Sept. 1st urine was below normal in quantity and amount of urea, but slightly in excess in sp. gr.

c. Same proved hot infusion of fresh root. Before retiring, Sept. 28th, ʒss. Soon much nausea, but no vomiting. 29th.—Pulse 68, regular. At 7 a.m. ʒss. Nausea returned; rumbling and weak feeling in lower bowel; headache, beginning in r. temple, soon sharp and stabbing, followed by confusion in head and vertigo; aching extends to meatus auditorius. Stool as usual. At 10.30 ʒss. Feeling of goneness; severe pain in head; arms feel too weak to be moved; pains in joints reappear. At 2, ʒss. In 20 m., pulse 60, described by medical friend as "full, slow, irregular, intermittent, dicrotic; at times feeble and readily compressed." Another, listening at chest, found "heart beating regularly for a short time, then fluttering occasionally and very feeble, then slow and laboured, now and then losing a beat;" he also noticed a clicking beat, for which he could not account. During afternoon and e., slight darting pains in region of heart, feeling of weakness there, had to breathe deeply from feeling of suffocation. After this, flashes of heat followed by perspiration. Stool, as usual. At 5.20 pulse found for first ½ of m. 18, for last ½ 32; at 6 it was 66, intermitting, which it continued to do that d. and n. Took no more of drug; slept well; on rising, pulse 60, fuller and more regular; stool mushy, yellow, flatulent; pain and weakness of heart returned; sensation as if it beat slowly, then fluttered, then went on regularly again; impulse at times very indistinct; sharp pain at intervals at inferior angle of l. scapula. Head symptoms continue, but with less vertigo. More or less aching in joints. Whole frame very weak.

Writing on Jan. 30th, prover states that after last experiment head and heart symptoms disappeared gradually up to Oct. 15th. Bowels continued over-active for some time, but were then normal, save that sphincter still felt relaxed. While too frequent (3 times a d.) he would feel bloated in abdomen, with slight pain here and there; then urgent desire for stool, making him feel that it might escape prematurely. This always occurred immediately after eating. The usual symptoms followed the stools; also considerable itching at anus. Appetite never better. Joint and scapular pains also continued long; and little boils appeared on face and thighs.

During days of last proving, urine was normal in quantity, slightly in excess in sp. gr., and considerably so in urea (454 gr. as compared with 369 in health).

APOMORPHINUM. See OPIUM.

ARACHNIDÆ.

(Under this heading are included the pathogenetic effects of spiders themselves, their web, and their venom, so far as their employment in medicine renders such information pertinent to the present work).

Aranearum Tela.—Cobweb—that of the black spider found in barns, cellars, and dark places, being the one employed.

I. *Provings.*—1. "The accounts of the action of cobweb being incorrect and various, I determined to ascertain (if possible) its correct operation by giving it to healthy persons. I found from these experiments that the operation of the web appeared to be principally on the arterial system; and perhaps in less time than any article previously known, the force and frequency of the pulse being uniformly reduced in some cases 10, in others 15 strokes in a m., and in one case the pulse, from being strong and full, became soft, small, and very compressible; all which operations took place within the space of 2 h., after which time the pulse gradually regained its former force and frequency. This has been the only invariable effect I could observe, all others appearing but anomalous." (*Broughton*, quoted by Dr. S. A. JONES, *Amer. Observer*, Jan. 1876.)

2. Dr. Webster gave 20 gr. to an old and infirm asthmatic. "Slight but pleasant delirium was produced, and from the report of persons who slept in the same room with him the effect, though of longer duration, was very similar to that of a dose of nitrous oxide gas; the muscular energy having been exceedingly increased, the patient could not be confined to bed, but danced and jumped about the room all n. In the m. I found him quietly asleep." (*Ibid.*)

3. Eberle says:—"I have taken it very often, and have uniformly found it produce a calm and delightful state of feeling, succeeded by a disposition to sleep." Dr. Oliver also found it to produce in him "the most delicious tranquillity, resembling the operation of opium, and followed by no bad effects." (*Ibid.*)

Aràneа diadèma, epeira diadema, cross spider.

I. *Provings.*—1. F., medical student, took of a tinct. made with one spider to 100 drops of alcohol, for several days, in m. fasting, from 12 to 33 drops. Soon after taking the dose, drawing in head down to lower jaw. Constant headache. Headache, with burning in eyes and heat in face. When walking headache is less than when sitting, tobacco smoking relieves it greatly. After ½ h. bitter taste relieved by smoking. After 1 h. sickly bitter taste in mouth, with furred tongue. After 2 h. headache, especially in forehead, went off on smoking. Heat in forehead and eyes; a disagreeable, trembling, flickering feeling in them when reading or writing, which also makes headache worse. After 4 h. heat in face, especially eyes. For the following symptoms no time is given: Confusion of head with prostration. The headache is relieved by smoking, and goes off completely when smoking in open air. Headache lasts till e., but becomes milder after a few h. and

ceases in open air. Headache and confusion of head, both relieved by smoking, but they return and last all d. Shooting in palate and larynx, for 2 h. After taking milk, a disagreable taste remains. Coryza for 3 d. Coryza with thirst. Weary, thirsty. Weariness without heaviness of legs, prostration. Thirst.

2. H., military surgeon, took first 1, then a few d. later 10, drops of same at bedtime. 1st d.—Violent obtuse digging bone pains in r. heel bone, for some d., immediately on moving the foot when it is resting, going off on continuing to move it. Restlessness with frequent waking, always with feeling as if hands and forearms were much swollen, twice the normal size. The feet so heavy he can scarcely raise them. After 16 h. painful cold feeling in r. lower incisors, especially when air rushes into mouth, recurred next d. at same h. 2nd d.—In afternoon, pinching pains in r. ear and parotid gland, which on leaving r. ear went to l. Quivering in muscles of l. upper arm for ½ h., afternoon. Feeling of heaviness and fulness in abdomen, like a stone lying in it, with qualmish feeling in scrob. cordis. At same time pinching in abdomen, heavy feeling in thighs so that they can scarcely be moved, with confused head. Worse next d. at same time, 5 p.m. 3rd d.—Thin stool with griping, relieved by rubbing belly with hand. The stool passed in detachments and with straining; ½ h. later fermentation in bowels. In m. in bed dull digging aching in r. upper and fore-arm bones and in r. tibia, recurring in fits during d. No time mentioned: In e., when studying, confusion of head, and pressive pain as if in bone of r. temple and upper part of forehead, relieved by supporting head in hand, but recurring when hand is removed. Sometimes obtuse digging bone pains in limbs. (Gross, *Allg. h. Zeit.*, i, 122.)

III. *Experiments on animals.*—1. "The poison of this spider resides in every part of the body. Plunge a lancet into it, no matter where, and prick a sparrow under the wing; it will soon die in convulsions." (Laville de la Plaigne, quoted in *L'Art Médical*, January, 1867.)

Aranea scinencia (?).—I. *Provings.*—1. The following proving was made with the first and second dilutions of a tincture made from the Aranea scinencia* by putting the spider, while alive, into strong alcohol.

R. S., a young man of nervous temperament, æt. 21. 1st d., took 2 drops at 3 p.m. without effect. At 3.30 3 drops; in 20 m. dull, heavy pain in postero-superior part of head. This having lasted 1 h., took 4 drops; pain immediately increased, extending all over head, dull, sluggish pain, but quite intense; slight nausea; eyes felt heavy, with a blur over them; felt as if he had been broken of his rest, but not sleepy. Pain continued, gradually increasing till 2 a.m.; could not rest; a strong dose of bellad. then relieved. In m. slight pain still in head; could not collect his thoughts. At 11 a.m. pain left him. At 3 p.m. took 4 drops. In 15 m. slight pains in head. In 30 m. most strange feeling in stomach, as if he had not eaten for a long time; this continued about 1 h. Pain in head persisted till e., when it passed off. Rested well that n. On 3rd d., at n., 1 drop. Soon began to feel slight headache.

* The writer says he is not sure he has the right name for this spider. It is "a grey one found in Kentucky in the summer on walls and old places; does not spin a web; is very quick in its movements, and takes its prey by a spring."—Eds.

At 3 took 5 drops more. Pain in head severe, affecting eyes; felt as if he had been drinking; increased secretion of urine so that he had to get up twice in n.,—urine cloudy. Very restless during n.; could sleep but a few minutes at a time, and that not soundly. 4th d., m., a good deal of headache, foul stomach, bowels costive and very unpleasant dull rumbling pains in them. Dull heavy pain in head all d.; eyes run a good deal, feel weak and inflamed; there seems to be a blur constantly collecting over the eyes; constant twitching of lower lids. 5th d. As yesterday, but worse; head more oppressed, with vertigo when stooping; eyelids swollen, twitching worse. 6th d. Bowels still costive; stomach much deranged; sleep on sitting down; head dull, with heavy painful fulness; still twitching of lids. From this time symptoms gradually abated. (Dr. ROWLEY, in *N. Am. Journ. of Hom.*, vii, 65.)

2. E. P., æt. 25, stout, dark hair and eyes. On 1st d. took 2 drops on going to bed. In 2 h. felt fatigued physically and mentally, as though he had laboured hard (had felt uncommonly well in m.); dull, stupid feeling in head, with fulness and aching, followed by vertigo, with nausea which soon passed away, but was followed by sour eructations and slight pain in stomach, succeeded by sensation as if bowels would be relaxed. Symptoms relieved in open air, and aggravated when in a warm room. After dinner dull pain in head, rather increased till after supper, when it was relieved. Took 2 drops on going to bed; sleep again uncommonly sound; slight palpitation on waking, soon passing off, after which felt particularly well, and had good appetite for breakfast. At 11, 2 drops. Dryness and prickling in throat, with sweet taste in mouth; rather profuse flow of saliva; glimmering before eyes; colic, increased by bending forward. (*Ibid.*)

II. *Poisonings.* [For want of a better place, we insert here accounts of spider bites occurring in non-tropical countries.—EDS.]

1. On Aug. 7th, Mr. Q., while in privy about noon, was stung on glans penis by a spider. Pain was not great at moment, but continued to increase till, 1 h. after accident, it had become extreme. Nothing was visible at seat of sting. In a few m. vomiting set in, and he complained of deep-seated pain in abdomen, extending up into chest, and of sensations of choking and suffocation. Vessels of neck and face were greatly distended, and of dark hue. Venesection and other remedies were employed; but pains and spasms along spine and extremities came on, and the agony and anxiety increased. Under ammonia and laudanum attacks gradually became less frequent; but pains continued till e. of next d., when opening veins in feet relieved them. He then soon recovered.

"I saw several spiders in the place where Mr. Q. received the sting. They were of large size, of a dark brown colour, covered with hairs over the legs and body." (Dr. HULSE, *Am. Journ. of Med. Sc.*, xxiv, 69.)

2. A woman was bitten on tongue by a black spider (Saltacus familiaris); instantly a painful sensation, like an electric shock, as though arising from several points, darted along tongue, involving also jaws and head. The tongue seemed almost paralysed, the utterance

thick and heavy, and the pains at root of tongue and in lower jaws, especially at articulation with temporal bones, were most excruciating. (Quoted from *Cincinnati Lancet*, xix, 900, in Allen's *Encyclopædia*, x, 324.)

Mygale.—I. *Proving.*—1. Dr. T. G. HOUARD gave a young lady, on 1st d. 10 drops, on 2nd and 3rd d. 20 drops, of a tincture prepared from the "Mygale lasiodora" of Cuba. On 1st d. no symptoms. On 2nd d., 20 m. after dose, nausea, with strong palpitation of heart, dimness of sight, and general weakness; at dinner-time utter aversion to food, could take nothing till teatime, when after a cup of tea and a piece of bread she felt better. On 3rd d., nausea and palpitation returned with greater force; felt sad all d.; tongue dry and parched; pain in back, extending round to front; general prostration; in e., tremulousness over whole body; restless all n., with ridiculous dreams. On 4th d. increased discharge of urine, with scalding on passing, and stinging in urethra. The symptoms lasted 3 d. with more or less intensity, and gradually passed off. (*Hahn. Monthly*, v, 8.)

II. *Poisonings.*—1. *a.*—I was called, May 5th, 1864, to visit a gentleman who had been bitten by a spider (Mygale avicularia) on instep of r. foot. I saw him about 30 m. after he had been bitten. The local inflammation was very extensive, leaving a large violet spot, which changed in a few h. to a greenish colour. When I saw him he had a violent chill which lasted ½ h.; then high fever set in, with trembling of whole body, pulse 130. Violent pulsating pain in foot, which extends up limb as far as groin. Respiration difficult, anxious expression of countenance, fear of death. At 5 p.m. delirium set in; he spoke of his business and became very restless. Aconite and guaco were given every h. alternately. Next m. much improvement; no fever; pulse 85. On 7th improving rapidly, complains only of soreness in groin. Inflammation of foot about the same, but pain much mitigated. Resolution soon occurred.

b. I was informed by a gentleman to-day that he had seen a child six years old, who had been bitten by the same kind of spider, and that he experienced about the same symptoms as my patient. The case terminated fatally on the 3rd d. by convulsions. (Dr. I. E. HOUARD, of Cuba, in *Amer. Hom. Rev.*, v, 81.)

2. Azara has often seen negroes bitten by the large mygales of tropical America; there results in 24 h. fever, and sometimes a little delirium, but no other grievous accident. (OZANAM, *Étude sur le venin des Arachnides*, Paris, 1856, p. 16.)

Tarentula.—I. *Provings.*—1. NUNEZ. [In 1864 Dr. Nunez, of Madrid, published an *Estudio Medico del Veneno de la Tarantula segun el Método de Hahnemann*, which was translated into French by Dr. Perry in 1866. It contains an excellent summary of all that has been written on the subject of *tarentism* and *tarentulism*, and we are indebted to it for several of the references we have utilised below. Dr. Nunez concludes by a schema of the pathogenesis of the spider, in which—with the symptoms of its bite—he includes a number said to be obtained by proving it upon a healthy body. For this purpose the Spanish variety was triturated, entire and alive, with sugar of milk, raised to the 4th

(cent.) by the same process, and then diluted. The 6th and 12th potencies were those mainly used by the provers, but one took the 3rd. Two or three doses were taken daily until symptoms set in, when the drug was suspended; and this usually occurred after the first day of ingestion. The names of ten physicians are mentioned as provers, and seven women are said to have tested the drug under competent superintendence.

Had Dr. Nunez given us the opportunity of studying these observations, we might have presented at least some of them to our readers. But he has, unfortunately, not only arranged them in the usual schema, but has omitted to affix to each symptom the name of its subject. We find evident traces, moreover, of the introduction of "clinical symptoms" into the catalogue (as S. 11, 125, 135, &c.); with much that is seemingly apocryphal in the character and duration (where this is mentioned) of the pathogenetic effects. Under these circumstances we do not feel justified in furnishing our readers with Dr. Nunez' symptom-list as a trustworthy series of the pure effects of the tarentula poison. If his executors can give us the day-books of his provers, it will be another matter; in the meantime the recorded effects of the spider's bite must be taken as our only sure data for the clinical use of the venom.—Eds.]

II. *Poisonings.*—1. *a.*—The bite of the Italian (Apulian) tarentula excites at the first moment a pain like that of a bee-sting. The neighbouring parts rapidly take on a livid, yellow, or black hue; the pain becomes very acute, but sometimes is replaced by a general benumbing; the injured part swells more or less. The patient is soon seized with anguish, sadness, sinking, great difficulty of breathing, and pain in the region of the heart.

Each variety can produce special effects.

b. The grey tarentula causes only slight local pain, with pruritus, sharp pain in bowels, and diarrhœa.

c. The spotted t. excites a more acute pain, a fiercer itching, with oppression of head, headache, and shuddering of the whole body.

d. The t. of the vineyards gives rise to the gravest accidents,—sharp pains, swelling, shiverings and cold sweats over the whole frame, aphonia, efforts to vomit, erections, tympanites. In those most seriously affected who have been able nevertheless to resist the primary disorder, there supervenes at the end of some days a state of melancholy, designated by the name of "tarentism," which can only be dissipated by dancing and music, or by the progress of age. It is rare, however, for those bitten ever to recover completely: their *morale* remains always more or less affected, they seek desert places and cemeteries, and love to stretch themselves in coffins, as though they were dead; others throw themselves down wells; young girls and the most modest women experience the symptoms of complete nymphomania; others roll themselves in the mire like pigs and seem to enjoy such a condition; others like to be rapped on the back, the soles, the heels; others find most relief from rapid movement. Some seek with pleasure for certain colours, especially red, green, blue, less often black; others repulse these with horror, or pass rapidly from one sentiment to another; and

if any person present wears garments whose colour is displeasing, the patient must escape, for the sight augments the anguish and aggravates all the symptoms.

e. By a curious periodicity, these morbid phenomena return every year, especially the three months of summer, or more particularly at the epoch corresponding to that of the bite. The recrudescence of the action of the poison makes itself felt gradually by anorexia, anxiety, headache, bruised feeling in the limbs; the patient flies to music and dancing, which often calm the symptoms, especially when the patient's gyrations determine free perspiration. But when the attack begins suddenly before help can be sought, the patient falls half-dead, like one struck by lightning; the extremities and face become livid; a sort of suffocation sets in; and the symptoms continue until the limbs become agitated, and the whole body is soon hurried into a sort of dance. If the choreic movements do not supervene at the critical time, the patient will remain all the year subject to grave symptoms; the skin takes on an icteric hue; there is slow fever, with anorexia; if, however, the agitation and sweating occur at the favourable moment, the health continues good.

f. Baglivi justly remarks that the symptoms produced by the tarentula approximate closely to those of chlorosis with hysteric complication, so much so that it is sometimes impossible to distinguish the two conditions. General debility, pallor of face, breathlessness, præcordial anxiety, palpitations, depraved taste, involuntary sadness,—these are, in fact, common to both. Martin Schurig also cites a case in which chlorosis supervened on the bite of a spider.

g. The results of the bite of the Ligurian tarentula have been studied by Drs. Gazzo (*Annales de thér. méd. chim. et tox.*, February, 1845) and di Renzi (*Gaz. méd.*, 1833, p. 633). The principal phenomena are divided into two stages. In the algid stage we have,—sharp pain at wound, radiating to neighbouring parts; general coldness, icy sweats, anxious breathing, cramps, cardialgia; general contractions; hoarse voice; heat in throat; trismus, or twitchings of jaw, recurring paroxysmally; nausea and bilious vomitings; flames and sparks before eyes. The symptoms go on increasing for about 3 d.; then comes reaction, lively heat all over; febrile pulse; abundant alvine evacuations; critical miliary eruption or general pruritus. Recovery ensues from 10th to 14th d. (OZANAM, *op. cit.*)

2. Dr. DI RENZI observed tarentulism extensively in the kingdom of Naples. "Introduced," he writes, "at a point in the integument, the virus develops there a circumscribed inflammation like that of bee-stings, sometimes considerable swelling extending to the neighbouring parts, with sensation of acute pain. In a few h. there is sadness, a melancholic and silent humour; the patient experiences a kind of anguish, constriction at the chest, vertigo, general trembling, nausea, vomiting; the pulse becomes frequent and irregular. If the remedy" (music and dancing) "is not used in time, the attack lasts some days with intensity; the patient falls into a kind of hebetude or torpor; the mere recollection of his trouble causes him very violent attacks of hypochondriasis; the return of the summer heats or the sight of another sufferer

from the malady excites a frightful rage." (*Gazette Médicale*, 1833, p. 633.)

3. C. S., infant of 3 months, was bitten by a tarentula. She appeared at first uneasy, then exhibited dyspnœa, cried and complained, showed signs of suffocation, vomited, and was agitated by convulsive movement. Music was played to her, and movements of the limbs set up, whence resulted profuse sweat, followed by sleep and complete recovery. (*Ibid.*)

4. A labourer was bitten on the foot during sleep by a tarentula of the most venomous kind. Awaking, he felt sharp pain at the affected spot, without being able to account for it. At the seat of the bite there rose a little circular swelling, dark red, and rather hard; there was stupefaction, oppression of breathing, nervous and muscular debility. These symptoms increased, and delirium supervened. Music, and dancing till perspiration set in, were employed, and recovery at once took place. (*Ibid.*)

5. Iraneta (1785) and Cid (1787) have published works on tarentism as observed in Spain, and have demonstrated the effects of the bite of the tarentula of that country (especially in La Mancha) to be identical with those of the Apulian species. Iraneta relates six observations of his own, and Cid thirty communicated to him by divers physicians in his neighbourhood. The latter thus sums up the phenomena:

"The subject of the bite of this insect feels a sharp pang like that of a bee-sting, but more violent. At the seat of the bite there ordinarily forms an areola, red, brown, or yellow; sometimes simply a small elevation without change in colour of skin; sometimes neither. In a short time the bitten place becomes numb, or the seat of painful itching; but the most frequent symptom is a numbness which spreads rapidly over the body, and there is at once an intense coldness, first local, and then general. Thereupon comes anxietas, anguish, extreme restlessness, embarrassed breathing, oppression, palpitation, narrowing of pulse, prostration, cold sweat, coldness of extremities, aphonia, faintings, vomitings, hyper-acute pain and inflammation in the belly, ardor-urinæ, priapism, scalding evacuations, immobility, venous congestions or a sort of apoplexy, resembling catalepsy, as if the vital spirits were frozen, with turgescence and dark coloration of face and extremities—in short, all the effects of a virus possessing a great coagulating power. When the patients are interrogated, they reply that they know not what is the matter with them; they carry their hand to their face as if to indicate the place where they suffer the most; they sigh, groan, and complain as if they were about to die; in some, agitation, pains in renal, hypogastric, and vesical region are such that they roll on the ground; in others the prostration is so rapid that they fall suddenly fainting, and the other symptoms do not become developed till afterwards." [The rest of Cid's description is parallel with that of Ozanam (II, 1. *e*) from Baglivi.—Eds.] (Nunez, *op. cit.*)

6. A vigorous negro, æt. 18, was bitten about 10 a.m. by a large tarentula* above l. knee. He immediately yelled and fell down; was

* The tarentula of the Southern States of the American Union is a recognised species.—Eds.

carried to house in agonies. Complained of terrible smarting pain, cold and hot, from bite to small of back and thence to bite again; this alternating pain continued until n. His neck felt sore, painful swallowing; excessive headache all over; eyes glaring, red; at 6 p.m. throat began to swell externally. Under lachesis relief was obtained; the boy slept all n.; next d. leg was a little stiff, not swollen. (HARDENSTEIN, *Am. Journ. of Hom. Mat. Med.*, iv, 106.)

7. Francis Mustel, a peasant, was about the beginning of July stung in l. hand by a tarentula, as he was gathering ears of corn. He went home with his companions; but on the way he fell down suddenly, as one struck with apoplexy. Then came on difficulty of breathing, and his face, hands, and feet became dark. His companions, knowing the cause of his illness, fetched musicians; and when the patient heard their playing he began to revive, to sigh, to move first his feet, then his hands, and then the whole body; at last getting on his feet, he took to dancing violently, with sighs so laboured that the bystanders were almost frightened; at times he rolled himself upon the ground, and struck it vehemently with his feet. Two h. after the music began, the blackness of his face and hands went off; and so, having gone through the dancing in the usual manner, and having sweated freely, he regained perfect health. Every year, about the time he was stung, the pain in the part affected returns with all the symptoms just mentioned, but less violent; and unless the imminent paroxysm is averted (which it always can be) by music and dancing, he is seized by it all of a sudden, so that about the expected time he is often found by his friends struck down in the fields by the deadly disease, when, music being brought, he is soon cured. (BAGLIVI, *Op. omnia*, 1718, p. 631.)

8. The tarentula cubensis (Araña peluda, hairy spider) belongs to the same family, genus, and species as the tarentula of Spain. Yet, though apparently alike, these spiders differ widely in their pathogenetic and therapeutic effects. The t. hispana is a nervous remedy, acting deeply and powerfully on the cerebro-spinal system; and many cases of chorea, hysteria, &c., have been cured by this precious agent. The t. cubensis, on the other hand, seems to be a toxæmic remedy acting directly on the blood. The bite itself is painless, so much so that persons bitten in the n. are not sensible of it until the next d., when they discover an inflamed pimple surrounded by a scarlet areola; from the pimple towards some other part of the body a red erysipelatous line is seen, marking the course followed by the spider over the skin after biting—so corrosive is the nature of this virus. The pimple swells, the inflamed areola spreads wider and wider; chills, followed by intense burning fever, generally supervene on 2nd or 3rd d., accompanied by great thirst, anxiety, restlessness, headache, delirium, copious perspiration, and retention of urine. The pimple in the meantime grows larger, and becomes a hard, large, and exceedingly painful abscess, ending by mortification of the integuments over it, and having several small openings discharging a thick sanious matter containing pieces of mortified cellular tissue, fasciæ, and tendons; the openings, by growing, run into each other, forming large cavities. At this period, the fever

takes the intermittent type, with evening paroxysms, accompanied by diarrhœa and great prostration. I have known two cases in delicate children where the bite proved fatal; but the majority of cases recover after a period of from 3 to 6 weeks. (Dr. NAVARRO, of Cuba, *Hom. Times*, March, 1879.)

III. *Experiments on animals.*—1. In dissecting a rabbit which had died from the bite of a tarentula, Baglivi observed that the cerebral veins were much injected and the substance attacked with a slight inflammation, specked here and there with livid points. At the same time a large quantity of serum was effused over the brain. (*Op. cit.*, p. 626.)

2. Prof. LANCERI, of Naples, in order to test the truth of the stories relating to tarentulism, procured some large and furious specimens and first experimented on fowls, pigeons, a tortoise, and a rabbit. Finding that no special symptoms were exhibited by these lower animals after being bitten by the spider, he looked around for some friend obliging enough to undergo the trial; such an one presented himself in the person of Prof. Gossi. He allowed the spider to bite his l. hand, but nothing resulted except some pain and swelling. The old stories, therefore, are clearly mere fiction.* (*Gaz. Med. Ital.*, 1878.)

Theridion.—[The spider proved under this name by Hering is a native of Curaçao, called by von Hasselt "orange-spider," and "well known to the people as very poisonous." Dr. Ozanam points out that the theridions are ordinarily innocuous, and Hering admits that his "theridion curassavicum" is very similar in many respects to the aranea tredecim-guttata, by which name Fabricius has designated the latrodectus malmignattus of Volterra and other places. It is probably, therefore, a member of the genus "latrodectus" instead of the genus "theridion," and its pathogenesis may be studied in connexion with the records of the bite of the malmignatte.—EDS.]

I. *Provings.*—1. HERING, *Archiv*, xiv.—[This pathogenesis gives no names or account of provers, but states that all experiments were made by taking one dose of 30th. It is, therefore, in the absence of confirmation, inadmissible here.—EDS.]

II. *Poisonings.*—1. M. Cauro has studied (*Thèse*. Paris, 1833, No. 288) the effects of the bite of the malmignatte as seen in Corsica. These are analogous to those of the viper, but less painful and less serious. In the first period we have torpidity, general tremor, nausea, vomiting, cold sweats, faintings or convulsions, delirium, frequent irregular pulse; in the second cardialgia, præcordial pains, pains in all the joints, general jaundice. The health returns slowly; the articular pains remain sometimes for years.

2. In 1789 the malmignatte (araignée rousse) of Volterra multiplied extremely, and many cases of its bite came before Dr. Marmocchi, who gives the following description of its effects:—"The bite excites instantly violent pains in the extremities and loins, producing in the legs an irregular movement called *scélotyrbe;* the patients

* "It is a fact now perfectly demonstrated that the tarentula has not the power of causing the whole *ensemble* of the phenomena attending its bites, save in the dog-days." (OZANAM, *op. cit.*, pp. 50-1.)

cannot keep on their feet. General convulsions, suppression of urine, priapism, swelling and pains in hypogastrium, vomitings, transient syncopes, and continued involuntary agitations of the body,—these are the ordinary symptoms and consequences of the venom. In the midst of such great nervous agitation, the pulse is scarcely altered; it rather seems contracted; but the unhappy victims emit howls, and experience extreme dyspnœa." (*Att. della real. acad. di Siena*, viii, 218, cited by OZANAM.)

III. *Experiments on animals.*—1. The Volterra spider was made to bite a dog on the lip; it became agitated, its neck swelled, it remained some d. without eating, languid, and with feeble extremities; it survived, but constantly licked the injured part with its tongue. Some very young birds were then bitten; in a few h. they became livid, swelled up and died. Others were made to eat the insect, cut up into small pieces; they vomited suddenly and were soon dead. (OZANAM, *op. cit.*, p. 37.)

ARALIA.

Aràlia rácemosa, L. Spikenard. Nat. Ord., *Araliaceæ*.

I. *Provings.*—1. Dr. S. A. JONES took, at 3 p.m., 10 dr. of tinct. in ℥ij of water. On retiring at midnight was seized with a violent fit of asthma; which, as he is subject thereto, can hardly be ascribed to the drug. He says, indeed, that "the programme was different" from that to which he is accustomed; but he does not specify the points of distinction. Two d. later, repeated dose at 1.30 p.m. No symptoms that n.; but on rising next m. had faintly-defined nausea in throat and stomach, and sensation in bowels as if diarrhœa would set in. "At 3.15 p.m. went to closet, expecting from my feeling a loose stool; evacuation was soft, yellow, in small quantity, and expelled with great difficulty. Mucous membrane of rectum came down like a tumour (have had hæmorrhoids). After stool, aching pain in rectum, extending upwards, and on the l. side. Feel weak, prostrated, half sick, and filled with a vague nausea." (HALE, *New Remedies*, 3rd ed., p. 471.)

2. Dr. HERRING, Aug. 29th, took ♏j at 6 and 10 p.m. No symptoms. 30th.—At 8 a.m., 3 and 5 p.m, ♏ij. Had a slight aperient effect, stool preceded by belching. 31st.—At 9 a.m., 1 and 6 p.m., ♏iv. At 4 p.m. some griping pains; at 10 some discomfort of stomach with flatulency. Sept. 1st.—At 9 a.m., ♏vj; at 10 p.m., ♏vij. Slight griping pains again, and some mucous discharge from rectum, which continued next d. In n. irritation of anus. On 2nd, at 9 a.m., ♏vii. Slight nausea during d., and relaxation of bowels. On 3rd all symptoms had disappeared. At bedtime took 12 drops. Remained awake greater part of n., but perhaps not in consequence of having taken drug. Headache, but not severe; the usual gastric irritation, as indicated by flatulency, also an aperient effect as before. Next e. a severe cold came on, without apparent cause; no cough. A few doses of *Nat. mur.* 1 removed it by next m. (*MS. communication.*)

ARCTIUM LAPPA. *See* LAPPA MINOR.

ARGENTUM.

(Including *A. metallicum*—triturated silver-leaf; *A. muriaticum*—silver chloride; and the hyposulphite and albuminate of silver.)

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 224 symptoms from self and 7 others.

2. Dr. W. HUBER, æt. 38, perfectly well, made his silver preparations from a dust-like powder of metallic silver triturated with sugar of milk for three decimal stages in Hahnemannic fashion, then dissolved up to the 6x attenuation.

a. May 3rd, at 8 a.m. 10 dr. of 6th dil. At 5 p.m. momentary tearing pain in the head of r. humerus when at rest. At 8 p.m. painful drawing in the depression close behind l. ear-lobe recurring at short intervals. N. very restless, sleep full of very vivid anxious dreams not remembered. M. on waking in bed uncommon weariness of limbs, especially of upper arms to shoulders, as after a long walk; at same time slight rigor under skin of upper part of body, and feeling of hunger which went off after a slight attack of nausea. After rising great weariness of lower extremities, most felt in region of both trochanters, felt as if the ligaments and muscles had given way, at same time painful tension in muscles about trochanters and seat, as if dislocated, worst when walking, when pressed on bruised pain. At 8 a.m. 20 drops. At noon recurrence of the drawing pain in hollow behind l. ear-lobe and increased heat of external concha, and itching of lobe inviting scratching. Afternoon, frequent fine pricks, and itching, inviting scratching of canthi of l. eye and also in skin of l. ear-lobe. E., stiffness of lower extremities, glutæi and hip muscles are painful as if bruised when walking, stooping, adducting thigh, and also when lying on these parts. 10 p.m., in bed, transient drawing from r. hock through knee to outer border of patella. At n. frequent waking for a short time. 7 a.m., woke hungry with feeling of great weariness in shoulders. When dressing painful stiffness in muscles about hip-joints. —5th, 7 a.m., 30 dr. After 1 h. dryness of tongue and hard palate. 10.30 a.m., in l. groin transient painful tension, in course of l. psoas muscle when walking and when at rest, frequent pricking here and there in skin as from fleas. After dinner, when at rest, painful drawing in r. side of thorax, an inch and a half below axilla, with bruised pain when pressed. Afterwards short painful tearing in r. shoulder-joint and then in r. side of forehead. 3 p.m., when at rest, transient drawing tearing in lower end of l. upper arm near elbow.—6th, 8 a.m., 40 dr. When touching the thorax, found on last l. rib a swelling the size of a pigeon's egg, not painful except when touched, which proved to be a furuncle. After 6 d., during which it caused little inconvenience, it burst and when squeezed discharged some pus. The hardness remaining under the skin went off after 14 d. At 10.30 a.m. frequently a cramp-like drawing in lowest muscular part of r. calf when at rest and when moving, lasting a few seconds. Afternoon till e., itching among convolutions of conchæ causing scratching, followed by burning sore pain.—7th., 7 a.m., 50 dr. In 1 h. hungry feeling in

stomach with attacks of slight nausea. After 3 h. short painful drawing in l. frontal eminence. The 2 next d. no symptoms. The 3rd d., on waking in m., bruised pain in sacrum and lumbar region, painful tension on both sides of occipital foramen, especially when moving; sexual desire diminished, stool normal but required more straining towards end than usual.

b. 11th, 7 a.m., 12 dr., 5 dil. 11.30 a.m., eroding itching in skin of forehead exciting scratching. 3 p.m., short but violent pricking as with a coarse needle in inner canthus of l. eye. N. very restless, full of dreams of disgusting things, but mostly unremembered. M. on waking great weariness of upper arms and stiffness of nape, going off after rising. 12th, 8 a.m., 20 dr. At noon, eroding itching on r. elbow. On waking m. feeling of great weariness with tensive bruised pain in nape, better after rising.—13th, m., 30 dr. Itching in inner canthus and on elbow.—14th, m., 40 dr. 7 p.m., short painful drawing in ball of l. thumb, alternating with similar sensation in l. occiput, when at rest.—15th, m., 60 dr. After ½ h. dryness of middle of tongue and of hard palate, flatulent distension and full feeling in upper abdomen with hunger, and drawing tearing (afterwards regular pulsating) pains in r. shoulder-joint when at rest, accompanied by marked paralytic weakness of this joint. Soon after this had gone, transient pain deep in r. frontal eminence, which took an oblique direction towards r. temporal region and gave place when at rest to a drawing tensive pain in r. inguinal region in the course of the psoas muscle. At noon bruised and dislocation pain on r. knee when moving, followed by a drawing pain combined with paralytic weakness on anterior aspect of r. upper arm, when at rest, with inclination to stretch out arm, lasting a few minutes; afterwards a short itching, provoking scratching, betwixt scapulæ. On waking m. in bed cutting as with a fine knife on l. side of scrob. cordis, in the cartilages formed by the union of the ascending false costal cartilages, lasting a short time but recurring several times and afterwards changing to a similar pain on the same place on r. side, but which had the character of a circumscribed pressure. A few m. afterwards, transient tearing pain deep in r. frontal eminence towards r. temple, and a similar pain from below upwards on the l. inner ankle, when at rest. Afterwards bruised pain on inner side of knee, followed by itching erosion on inside of l. knee.—16th, 7 a.m., 70 dr. After ½ h. dry feeling in buccal cavity and drawing pains in muscles of r. upper arm near elbow with paralysed feeling there, followed by ravenous, almost painful, hungry feeling in stomach, recurring in fits. At noon, painful drawing through radial joints of r. elbow lasting 10 to 15 seconds, followed by similar pain in l. hip when at rest. Afternoon, a single perpendicular stitch through skin and cartilage of l. upper eyelid. 8 p.m., when walking across room a drawing pain in l. side of head as if in brain-substance, at first slight but gradually becoming more severe and tearing, and when it reached its climax maddening as if a nerve were torn in two. It lasted 25 to 30 seconds and suddenly ceased when it had attained its greatest intensity. N. very disturbed by anxious dreams. Next m. after breakfast a horizontal cutting as with a knife on l. side in costal cartilages near scrob. cordis, when at rest. N. very

restless; made anxious by a bad dream in which he was furiously pursued by a powerful enemy. Woke early and very tired. The weariness seemed to be especially in hip-joints. During this proving urine and stool were normal, only towards end of each had to strain, which caused dislocated pain in back of pelvis, especially on l. side.

c. 19th, 6.30 a.m., 20 dr. 4th dil. After ½ h. dry feeling in buccal cavity, bruised pain in l. inner ankle, painful drawing in l. temple, followed by tearing pain from head of r. humerus extending to nape, when at rest. During d. often a painful drawing on l. side of pelvis, posteriorly, outside, when at rest; frequent painless subsultus about r. shoulder-joint, sometimes in posterior wall of axilla, sometimes in front of clavicle towards acromion. 4 p.m., a transient drawing pain through r. inguinal ring to testicles, when at rest, and a pappy stool, though bowels had been opened normally in the m. N., in sleep, an incomplete seminal emission.—20th, 8 a.m., 30 dr. After ½ h., feeling of hunger and quivering subsultus from anterior r. clavicular region towards shoulder-joint (in a bundle of fibres of pectoralis major) when at rest. During d. 3 pappy stools. Before the last almost diarrhœic stool a pinching and straining and ¼ h. afterwards a momentary severe stitch from before backwards in hypogastrium; thereafter a feeling in anus as though a live thread-like worm were hanging out of it, and by its twistings caused an itching but without desire to scratch. N. disturbed by dreams. —21st, 7 a.m., 40 dr. After dinner (1 p.m., when lying quietly) a drawing pain in middle joint of r. index, with sudden paralytic weakness of it, lasting 30 seconds, thereafter strong pulsation in carotids, especially on l. side of neck, and perceptible beating in whole extent of l. cheek as though the muscles were lifted up from m.m. At same time feeling as if l. cheek were larger and a slight cooling burning in external integuments of cheeks with redness of both cheeks, lasting 6 to 8 m.; later a short painful drawing in r. deltoid muscle. 3 p.m., a similar beating in l. anterior nasal cavity, tension of outer nasal integument as if nasal bones were pressed, with tickling prickling in l. nasal cavity, followed by several violent sneezes, with dislocated pain in l. shoulder-joint when at rest. At 4 p.m. drawing pains in l. deltoid muscle, which pained as if bruised when pressed with finger, when at rest, lasting 10 to 15 seconds. At 8 p.m., when walking in open air, a violent itching at anus (compelling scratching) and along coccyx up in the furrow between nates, lasting 5 m.; afterwards dislocation pain in l. outer ankle when walking. N., very restless, with many anxious or frightful dreams.—22nd, 7 a.m., 50 dr. In ½ h. great dryness of buccal cavity, pappy stool. 8 a.m., throbbing bruised pain at anterior aspect of r. knee when standing. 9 a.m., dislocation pain in l. hip caused by sneezing. At noon, a squeezing pressing pain in a spot size of a crown in r. side of cheek under axilla, when at rest, pressure on it causes bruised pain. ¼ h. later, rumbling and grumbling in belly as if a fluid were poured from one bowel into another; at same time sensations in rectum as though a live worm were wriggling through the anus and touching the inner surface of the rectum in its twistings, lasting about 10 m., and recurring after dinner when sitting and standing. At 2 p.m. drawing tearing pain over wrist-joint. At 7 p.m., after a

moderate walk, when at rest, drawing tensive pain in l. lumbar and iliac regions beneath inguinal ring in l. thigh, followed by paralytic pains in almost all finger-joints of r. hand, lasting 10 to 15 seconds. At 10 p.m., in bed, first a drawing deep in r. half of brain beginning slightly and gradually increasing to violent tearing spreading at once to forehead and occiput. After a few seconds painful paralytic drawing over wrist-joint, spreading upwards from prominence of wrist along ulnar side of r. forearm. Besides this tympanitic distension of whole r. side of abdomen, paining as if bruised when strongly pressed, going off slowly on discharging flatus. Some m. after this two uncommonly severe stitches from without inwards in the depression behind l. ear-lobe. Shortly before falling asleep observed when inspiring quietly two tones (a higher and a lower one) as from the mouth-piece of an oboe, coming from low down in throat. N. full of dreams of the occurrences of the day. M., woke very exhausted and prostrated.—23rd, 7 a.m., 60 dr. In ¼ h. dryness of tongue and buccal cavity. During d. a transient stitch in urethra from behind forwards; frequent, paralytic, painful drawing from middle of flexor side in the radius of l. fore-arm up to elbow, with gloomy confusion of head, when at rest, and dislocation pain in uppermost muscles of r. scapula when exerting himself with outstretched arms. N. full of dreams. M., after waking, extreme powerlessness of limbs, especially of upper arm round about shoulder-joint, with slight chilliness over skin on uncovering the upper part of body. At same time feeling of hunger as from great emptiness of stomach.—24th, 9 a.m., 70 dr. Forenoon, several times slight drawing pains in l. parotid gland. During afternoon siesta much saliva in mouth making him spit; thereafter such dryness of mouth that the tongue cleaved to roof of mouth, lasting 10 m. N. pretty good. M., after waking, a throbbing shooting synchronous with pulse from l. trochanter along the neck of femur to acetabulum, lasting 20 seconds. Each throbbing terminated in a fine stitch.—25th, no med. In metacarpal joint of ring finger, painful drawing, penetrating pain, as if in bone, when at rest. Afternoon, after a longish walk, on posterior surface of external l. part of pelvis (at insertion of glutæus maximus) a dislocation pain, renewed at every step, not felt when at rest.—26th, no med. During afternoon siesta, collection of saliva in mouth necessitating spitting. E., very painful paralytic drawing in r. fibula, beginning just above ankle, and lasting 8 to 10 seconds, when at rest; followed by feeling in the convolutions of l. concha as though a many-footed insect crawled about; but no itching. N. good. M., on waking in bed, on l. side near scrob. cordis, on costal cartilages of false ribs, a cutting as with a fine knife diagonally across; the part pained as if bruised on pressing on it.

d. 27th, 7 a.m., 3 gr. of 3rd trit. 11 a.m., great weariness with powerlessness, especially of upper arm, with desire to lie down and sleep. On giving way to this inclination got a feeling of hunger with nausea, painless contraction of gullet and inclination to swallow saliva (lasting some m.). On going to sleep was prevented doing so first by an electric shock in r. lower extremity, and then by two similar shocks of upper part of body, which had their exploding spot close to occipital

foramen. Thereafter in interior of throat (the larynx) a kind of curious throbbing, cracking, or creaking, something like a metallic reverberation such as the frozen brooks sometimes give forth in spring on breaking up of the ice. N. good, woke at 4 a.m., and fell asleep again in ¼ h. —28th, 7 a.m., 7 gr. At 10 a.m. dulness in head and weakness of thighs when walking; at same time frequent shooting in canthi of both eyes and eroding itching in sulci of r. concha, making him scratch. 11 a.m., some flying stitches behind abdominal wall between r. hypochondrium and epigastrium, followed by hunger and loud rumbling in bowels. Afterwards an insufficient hard stool with pressing; an acute pain in last double tooth of l. lower maxilla; the lower row of teeth adhered to the upper, as if the enamel of the teeth were covered with a layer of adhesive putty. During d. pricks here and there in skin like electric sparks. 6 p.m., when walking across room, repeated short paralytic pain going through the marrow of the r. side of tibia. When sitting in open air tensive bruised pain on both sides of neck down the course of sterno-cleido-mastoideus, only felt when the head is turned to opposite side and the muscles stretched. N., a seminal emission and many anxious and disgusting dreams. Woke at 3.30 a.m. and could not get to sleep again. In bed had a drawing tensive pain in middle joint of l. index, becoming after a short time throbbing pain; at same time powerlessness in upper arms as after severe manual labour; hunger; pricking itching in canthi.—29th, m., when walking in street, boring scraping pain in r. shoulder-joint. At 8 a.m., 10 gr. In ¼ h. short drawing pain in condyles of l. knee, followed by a similar pain in l. temple, when at rest. During d. feeling of hunger with painless retraction in scrob. cordis, a very violent stitch in front of l. elbow, when at rest. 6 p.m., burning pain limited to a spot size of a shilling on elbow, for more than 20 seconds, when at rest. N. good. M., in bed, weariness in upper arms and drawing pain in radius, beginning over wrist, followed by similar pain in r. shoulder.—30th, 8 a.m., 16 gr. During d. bruised pain on l. patella and l. side of pelvis posteriorly, when moving, with pain as if dislocated. During afternoon siesta, feeling of hunger with attack of nausea. After waking weakness of lower extremities, the knees knuckle under him when walking; afterwards painful drawing in l. temple with sitting. 4 p.m., repeated digging pain deep in body of r. testicle, when at rest, with dread of knocking against something. E., burning pain in corn on l. little toe. N. good. M., on waking, prostration of all limbs, bruised pain in sacrum, lumbar region and nape, especially felt when moving, with repeated violent stitches in hollow behind r. ear-lobe penetrating into head.—31st, 8 a.m., 20 gr. In ¼ h. repeated drawing throbbing pain in middle of l. tibia, when at rest, followed by violent drawing pain in r. nape near occipital foramen, with bruised pain on the inner side of r. patella. At 8.30 a.m. this bruised pain attained such intensity when walking that he could only limp along; it went off after 25 seconds while sitting; at same time weariness and weakness of that extremity. 11 a.m., in middle of extensor side of l. forearm on the skin, a frightful prick as from a sting by an angry wasp, followed soon by a similar prick but not so severe, in skin of r. side of thorax. ½ h. after this, when lying,

a cold feeling in a small spot near the sacrum at r. side of pelvis, as if the skin and underlying muscles were touched with the point of an icicle, lasting 30 seconds and recurring after dinner. Afternoon, hot burning on tip of tongue as though he had tasted a fragrant aromatic substance. E., a paralytic drawing pain in l. ankle-joint towards outer ankle, lasting some m., when at rest.—1st June, no med. At 10 a.m. dislocation pain, when moving, in the muscular part forming the posterior wall of axilla, going off when at rest. 11.30, when walking in open air, dislocation pain on inner condyle of r. tibia. ½ h. later, when sitting, drawing pressive, then throbbing pain on dorsum of r. foot in metatarsal bones. 6 p.m., tearing in backs of middle toes of l. foot, followed by paralytic drawing in bones of r. hip-joint when at rest, with simultaneous sensation in anus as if a worm were forcing its way through sphincter, without itching. Soon afterwards, paralytic drawing on middle of l. tibia, when at rest, as if in periosteum. 9 p.m., violent tearing in middle joint of r. little finger, followed by drawing pain in l. frontal eminence. After waking prostration and weakness, especially of upper arms, with hunger.—2nd, m., after rising, dislocation pain on inner side of r. knee, going off during rest. 9.30 a.m., when walking in open air, a very violent dislocation pain deep in l. sacrolumbar region, aggravated to an intolerable degree on every adduction of l. thigh, making him limp, lasting some m., followed by bruised pain in outer side of l. knee. 10 a.m., drawing pain from mastoid process 1 inch long, relieved by strong pressure when at rest. 11 a.m., short paralytic drawing on outer side of l. upper arm, with bruised pain when pressed. 11.30 a.m., drawing pain in radial side of wrist-joint when at rest, going off on moving hand and with bruised pain when pressed. Shortly afterwards a paralytic pain in periosteum (or bone) of left fibula, when at rest, followed by painful drawing in interior of l. ear. After dinner a violent electric shock proceeding first from l. then from r. hip joint, and preventing sleep. 10 m. later, on falling asleep with hands laid on head, there occurred a more violent electric shock in l. arm proceeding from shoulder-joint. 3 p.m., when walking in street, an intolerable, very violent pain, accompanied by powerlessness, involving almost the whole of l. fibula, lasting some m. It seemed compounded of pressure, digging, tension, stiffness, bruised, cracked feeling (of the bone). 6 p.m., the same pain in same place. All e., till 11 p.m., frequent tearing pains, sometimes in l., sometimes in r. head of fibula and in bone beneath, with slight scalding when urinating, as though the urine (which was normal) were more acrid. N. good. After waking, m., the same tearing pain in fibulæ. After rising, when moving, dislocation pain externally on posterior part of pelvis and on r. inner ankle.

e. 3rd, 8 a.m., 5 gr. 2nd trit. In 1 h. pressive bruised pain in head of l. humerus when walking, followed by painful drawing in l. occipital region (betwixt protuberance and mastoid process) when at rest. During d. frequent drawing pains, first in one joint then in another, in upper arm, calves, forehead, always transient and alternating, when at rest. 3 p.m., painless jerking in l. elbow-joint when at rest, a brownish-yellow, pappy, almost diarrhœic stool, with ineffectual pressing at end of evacuation. 4 p.m., after a short walk, repeated tearing pain

in course of both spermatic cords to testicles, when at rest. E., in bed, contused pain in both testicles. N. good. M., after rising, dislocation pain in r. knee and cramp of calf, when walking.—4th, 8 a.m., 10 gr. Forenoon hungry feeling with nausea as from emptiness of stomach, with rough irritation in bronchi (causing dry cough); at same time in lowest ribs near spinal column drawing shooting pain as in an ulcer followed by similar pain in r. side of pelvis posteriorly, when at rest, and drawing pain in l. metatarsal bones and ankle-joint, with burning in corn on l. toe. From moderate walking slight excoriation between nates at anus and in bend of thigh. After dinner subsultus of muscles in bend of r. elbow and bruised pain in head of r. humerus, when at rest. 3 p.m., when walking, a bruised pain in flank above l. hip all over l. side of pelvis; in hip-joint at every step dislocation pain so that he could only walk in a limping way, lasting some m. 4 p.m., painful drawing close to ear cartilages in hollow behind r. ear-lobe in crescentic form, when at rest. 7 p.m., repeated contused pain in r. testicle lasting 4 or 5 m. The pressure of the trousers when walking aggravated the pain. N. good. M., inclination to go to sleep of arms when lying on them, with increased saliva in mouth.—5th, 9 a.m., 15 gr. Forenoon, no symptoms except the above-described bruised and dislocation pains on left side of pelvis when walking, and a violent stitch on the tip of both elbows. 3 p.m., itching crawling in faucial opening of r. Eustachian tube, extending to membrana tympani, lasting 10 seconds. Then the same in l. ear. N. good. 6th. No med. Drawing digging pain under r. deltoid muscle in shoulder-joint, followed by drawing throbbing headache deep in the r. side of brain, when at rest.—7th. M., when writing a momentary, but horrible stitch in l. side of chest in cardiac region (as if in pleura). During d. frequent spasmodic but painless jerking of whole cardiac muscle, especially when lying on back; at same time a constantly recurring idea that apoplexy was coming on, and that he would not be able to finish the proving. Also sensation in enamel of teeth as though they were covered with sticky putty, lasting all d. N. with frightful anxious dreams.

f. 8th, 9 a.m., took 5 gr. of 1st trit. 5 p.m., cutting pain lasting several seconds, in l. fibula as with a fine knife, when standing. N. good.—9th, 5 a.m., 10 gr. In 1 h. head dull as if numb, dryness of buccal cavity, powerlessness of limbs, knuckling of knees when going upstairs, painful pressive tension alternately in tendon of r. psoas and deltoid muscle, bruised pain when pressed. 8 a.m., shuddering horripilation through whole outer side of l. lower extremity when standing in room. 11.30, when walking in street dislocation pain in top of r. shoulder and l. inner ankle; on coming home giddy in head with slight shudder through skin. Afternoon when writing painless jerking of whole r. thumb (10 or 12 times repeated) which jerked it away from the other fingers. N. good.—10th, m., 15 gr. In 1 h. giddy stupefaction of head, dryness of mouth, hot feeling in face without redness, drawing pains successively in forehead, occiput, l. elbow-joint, when at rest; bruised pain in front of l. thigh and l. knee, dislocation pain in r. hip-joint, jerking subsultus above l. patella, paralytic weakness on

moving, and very slight sweating, especially during and after eating. 3 p.m., drawing pain in r. submaxillary gland lasting 5 or 6 seconds. E., some itching, inviting scratching, on inner surface of l. ear-lobe and burning sore feeling betwixt nates after a short walk. N., difficulty in getting to sleep on account of pain in corn; sleep full of dreams. M., after waking, feeling of hunger, drawing pains in r. frontal eminence, and throbbing tearing in middle of r. tibia.

This ended the proving. Many of the above symptoms continued for some d. after the cessation of the proving, and some new symptoms occurred up to 24th June, which were evidently owing to the silver. These were: drawing tearing in r. zygomatic process. A pain brought on by a draught of air in cricoid cartilage of larynx, lasting ½ a d.; it felt like a cork in the throat; when pressed caused bruised pain. Before midnight, in bed, desire to sleep, but inability to go to sleep on account of heat and pricking on skin, and when he fell asleep attack of giddiness in head so that he felt as though his head would tumble out of bed, followed by a violent convulsive shock like epilepsy, when the vertigo and sleepiness went off. Feeling in anus as if long air-bubbles were passing away. On sneezing a cutting dislocation pain on the cartilages of the l. false ribs in a horizontal direction on the l. of the scrob. cordis. (*Oest. Zeitschr. f. Homöopath.*, 1845, ii, 158—172.)

3. Proving of Arg. muriaticum, by Dr. LEMBKE, of Riga. 27th Jan., 1866, 7 a.m., 10 gr. 3rd. trit. 9 a.m., 10 gr. E., boring in borders of r. foot.—28th, 7 a.m., 10 gr. 8 a.m., drawing in skin of l. temple as if skin were contracted there. 11 a.m., when walking drawing in skin of outer side of l. thigh, afterwards the same above inner condyle of l. elbow. 4 p.m., severe shooting in r. eyelids. N., frequent micturition, urine normal.—29th, 7 a.m., 10 gr. Boring in outer side of r. ankle-joint.—31st, 7 a.m., 10 gr. No symptoms.—1st Feb., 7 a.m., 10 gr. 2nd trit. 8 a.m., violent stitches in skin of r. eyelids. 9 a.m., great call to urinate, which must be immediately obeyed; much clear urine passed. 10 a.m., the same, and again repeatedly till 4 p.m. 1 p.m., several times drawing in skin above inner condyle of r. elbow.—4th, 7 a.m., 10 gr. During forenoon very frequent and strong call to urinate; much urine. The same state towards e.—5th. Frequent and great discharge of yellowish urine. The same n.—7th, 7 a.m., 10 gr. Frequent and profuse discharge of urine, but with less urgency.—8th, 7 a.m., 10 gr. Frequent micturition; much bright yellow urine.—9th. Less frequent micturition. Woke with pressure in forehead, lasting till 4 p.m., increased by stooping; cough better in open air; some nausea along with a severe fit of headache, which was not of equal intensity all the time it lasted, but at times declined considerably, then without cause became suddenly very severe. After 4 p.m. the headache again occurred, especially on stooping.—10th, 7 a.m., 5 gr. 1st trit. Taste slightly metallic, rather bitter.—14th, 6 a.m., 10 gr., and 8 a.m., 10 gr. 1st trit. Tearing in frontal bone. 8.30 a.m., and later again at 4 p.m., heaviness and pressure in frontal bone, with heat in forehead, increased by stooping. This pain lasted till bedtime, was sometimes more violent, *e.g.* at 9 p.m., when walking in open air. 10.30 p.m., tearing from forehead,

spreading back over the crown. 2 p.m., tearing on r. side of upper jaw. 10.45 p.m., spasmodic contraction in gullet. 11 p.m., 10 gr. Pressure deep in r. leg for some m. when seated, and recurring several times, followed by above pain in forehead in l. knee.—15th, 6 a.m., 10 gr. 6.30 a.m., tearing in crown and occiput, below r. eye in superior maxilla, at 7 a.m. on both sides of occiput and l. shoulder. 7.30 a.m., the pain again on r. lower orbital border. 8 a.m., 10 gr. 8.30 a.m., great urging to urinate; urine dark yellow, very acid.—16th, 8.30 a.m., 40 gr. 9 a.m., tearing in l. side of head and l. thumb. 3 p.m., tearing in l. temple several times. Frequent call to urinate. (*N. Zeitsch. f. hom. Klin.*, xi, 129.)

III. *Experiments on animals.*—1. An elaborate series of physiological researches on the effects of silver salts on animals, by Dr. Bogolowsky, of Moscow, has led him to the following conclusions.

a. Silver produces a decidedly antiplastic effect on the blood, making that fluid more fluid, darker, and more prone to the formation of ecchymosis and effusions. A longer continuance of this influence produces chlorosis. The blood-corpuscles give up their hæmoglobin to the plasma, become transparent and pale, and are altered in shape. The effused hæmoglobin passes gradually into hæmatine, and the latter into a dark yellow colouring matter, in consequence of which the gall-bladder is constantly distended with a dark green bile.

b. The quantity of urine was generally diminished, while its sp. gr. was increased. The evacuations were notably increased, and coloured dark yellow, or like chocolate.

c. The fluctuations of temperature were not particularly remarkable; nevertheless there was a pretty nearly constant lowering by a few tenths of a degree, both in acute and chronic poisoning.

d. The mucous membrane of the air-tubes and of the intestines was catarrhally affected by the prolonged use of silver, gastric or subcutaneous.

e. The liver-cells and the epithelium of the canals of Bellini were mostly in a state of cloudy swelling, or else of fatty degeneration. The liver was sometimes found congested and enlarged; sometimes, on the contrary, reduced in size and anæmic. The gall-bladder was in the majority of cases found distended with a large quantity of bile, the intestinal evacuations, as already remarked, containing a notable admixture of this fluid.

f. In the urine of animals who had long taken silver the presence of albumen was in many cases detected; in such instances the medullary cones of the kidneys were richer in blood than the cortical substance.

g. In various researches changes in the muscular fibres of the heart were observed, which were analogous to the morbid process in the liver and kidneys. The fibres were increased in circumference, and were cloudy, with a large quantity of granular substance which, on addition of acetic acid, vanished; the transverse striæ were obliterated; and, not rarely, enlargement of the nuclei of the sarcolemma was observed. A thoroughly developed fatty degeneration of the muscular fibre of the heart was not seen, even in a single case. Similar changes were simultaneously found in the other muscles of the body.

h. The fatty tissues were in most cases atrophied, and the intermuscular cellular tissue often in a state of "mucous" degeneration.

i. A universal blood-stasis (repletion of all the veins of the body with a very fluid blood containing coagula, hypostasis of the lungs, repletion of the vessels of the medullary cones of the kidneys) was the general phenomenon found, on dissection, in all animals killed either by acute or by chronic poisoning with silver. Not unfrequently there was transudation into the two pleuræ and into the peritoneal sac, in consequence of this blood-stasis.

j. In many of the observed cases the urinary bladder was found distended in consequence of disease of the spinal cord, which was usually developed some days before death in animals which died of chronic silver poisoning.

k. The continued administration of silver in progressive doses causes a loss of weight, and visibly destroys the nutrition, so that an impoverishment and a chlorotic transformation of the blood are produced. This last occurrence takes place most rapidly when the silver salt has been administered by means of subcutaneous injection.

These results followed equally when a peptonate or albuminate as when the nitrate of silver was employed. (BOGOLOWSKY, *Virchow's Archiv*, vi, 4, and *Practitioner*, iii, 65.)

2.—*a.* The main point determined by modern investigation into the action of silver compounds is their special effect on the nervous system. The best experiments on animals have been made by hypodermic injection of hyposulphites and albuminates of silver, which do not coagulate albumen. Charcot and Ball found paraplegia result from such injections (*Gaz. Méd.*, 1864). Rouget found that in mammalia small doses caused excitement somewhat like that of strychnia; toxic doses induced convulsion and asphyxia. Batrachians got convulsions or tetanic spasm with suspension of voluntary movements, of reflex action, and of respiration, while circulation continued; weakness, torpor, somnolence and paralysis also occurred in various degrees (*Arch. de Phys.*, 1873). Curci found hypodermic injections of the hyposulphite first stimulate the sensory nerves, and through them the posterior columns of the cord, so that impressionability and reflex excitability are increased; this condition extends more or less to the motor nerve-tracts, muscular irritability is heightened, and tetanus may be produced; afterwards comes a secondary paresis of sensory nerve-centres and of those connected with respiration; ultimately reflex action is arrested, and respiration and circulation cease (*Lond. Med. Record*, 1877).

b. Orfila described asphyxia as resulting from injecting silver nitrate into the veins, and after death he found partial consolidation of the lungs, and excessive secretion into the bronchial tubes. Several observers have corroborated these results, and it has been a question whether they are mainly mechanical, from thrombosis, &c., or due to a reflex paresis of the pulmonary nerves, as maintained by Charcot (who found the bronchorrhœa and asphyxia result from hypodermic injection), or results of direct action on the respiratory centre in the bulb and of the neighbouring vaso-motor centre. The recent observations of Rouget point to the latter conclusion. He found that in most

animals urgent dyspnœa occurred, and, *post mortem*, the lungs proved to be healthy in texture but much contracted in volume—the muscular tissue of the bronchi being in a state of spasm similar to that of asthma. In adult specimens of only one order of animals (carnivora) did he find the excessive secretion described by Orfila, and he considered that only in these were the vaso-motor centres affected. That the main effect is exerted upon the central rather than on peripheral nerve-elements he further supported by showing that nerves and muscles retained electric excitability after death. Still more recent observations by Rozsahezzi (*Archiv*, Klebs, Aug., 1878) on rabbits show that in chronic poisoning by silver there is constantly hyperæmia of laryngeal and tracheal membranes, also of the lungs, and in these organs often œdema was found, with congestion, ecchymoses, effusions, cheesy masses, and sometimes a condition resembling phthisis.

c. Rozsahezzi also found very marked diminution of tissue change and of weight, under the continued influence of small doses of the nitrate. This occurred even whilst the animal was taking a good amount of food, and when no increased exertion could account for the loss; he thinks it indirect, from impaired blood- and muscle-condition. (PHILLIPS, *op. cit.*, *sub voce.*)*

ARGENTUM NITRICUM.

Nitrate of silver, Ag. NO_3. Lunar caustic.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains a few symptoms only.

2. J—, student, æt. 22, blond, of phlegmatic temperament, but vigorous; liable to branny spots on neck. Took of 1_x trit. as much as would cover point of knife, in water, each e. before retiring. After 1st dose,—metallic styptic taste, like ink, immediately; dizziness before falling asleep; restless sleep, dreamful, with much tossing about and frequent dazed awaking; woke early in m. with flatulent rolling and rumbling in bowels, and sensation as if he must go to stool. Three diarrhœic stools at short intervals, the first evacuation being papescent and copious, the other two scanty and of a watery mucus, dark and fetid. Does not relish the usual breakfast (coffee and milk). The whole forenoon his limbs feel very weary and debilitated as after a distant journey, accompanied with great feeling of illness, dread of labour, drowsiness, chilliness, does not look well. No appetite; frequent rising of air. Feels chilly all over in e. (in the room). After 2nd dose diarrhœa in n; six liquid brown fetid stools. Sweat with chilliness as soon as he got warm in bed. After waking painful confusion in forehead; this disappears after eating. Weary, debilitated, no appetite. White slimy tongue; the papillæ are enlarged, smarting

* "In man, even after the administration of large doses of silver nitrate, none of the above-mentioned symptoms or organic changes have been met with" (NOTHNAGEL and ROSSBACH).

like a sore. Looks very ill. Frequent emission of pale strong-smelling urine. Urine continues to drop out after the micturition is accomplished, with sensation as if the urethra were swollen. After 3rd dose drowsiness and tossing about in n., but no sleep. Palpitation. Sweat towards m. Tremulous weakness in the daytime, accompanied with general prostration and apathy. No appetite; food tastes like straw.

The prover could not be induced to continue the proving lest he should be too ill. On 6th d., 3 d. after he had discontinued taking the drug, his health was fully restored except some weakness in lower extremities. (Dr. J. O. MÜLLER's provings, *Oester. Zeitschr. f. Hom.*, vol. ii.)

3. H—, man of 32, short and thin, of phthisical tendency, had syphilis and hydrargyrosis years ago, but now quite healthy. Proved drug like No. 2. After 1st dose,—bitter, astringent, metallic taste, "as of verdigris," causing nausea and retching; could not get to sleep for fancies and "images hovering before him;" then dreamful half-slumber for first part of n.; scarcely had he become quiet when he was obliged to go to stool, with slight colic; he had sixteen greenish fetid mucous discharges during the night, which went off with a quantity of noisy flatulence. Great debility in daytime, even to exhaustion; lumbar region felt as if beaten to pieces. Papillæ about l. margin of tongue became erect in the shape of reddish, painful pimples; the tongue pained as if burnt; fauces and œsophagus felt burning and parched. After 2nd dose sleeplessness and tossing about in bed, with nervous excitement; in m. mouth and fauces were covered with mucus; he had to hawk and spit constantly. During d. dry titillation in the larynx inducing cough; several turns of dry and hacking cough; indefinable pain in the hypochondria. Cutting in sacrum and abdomen (also when touched); cutting and stitching in liver; violent empty eructations. White tongue; collection of a watery, tasteless saliva in the mouth. Trembling and beating in stomach. Copious diuresis. After 5th dose, the same nightly restlessness, with a good deal of urination; terrible headache in m. when waking, obliging him to gnash his teeth; shifting of flatulence in abdomen; two diarrhœic stools in m. A good deal of urine is frequently passed through the d., sometimes with divided stream. Creeping and burning in anus. After 4th dose, paroxysms of dry cough at n., sometimes so violent that it induces vomiting; and starting of lower limbs, especially of knees, the concussion wakes him in affright. Mucus drips out of the urethra. Colic around umbilicus in forenoon (10), recurring several d. in succession. Tension in axillary glands of r. side. The chest is filled with mucus; watery mucus in mouth and posterior nares d. and n. The outer chest is painful to the touch. Two diarrhœic stools in e. After 5th dose, cough and sweat at n. Three very profuse involuntary emissions. After 6th dose there was no peculiar reaction perceptible; and the experiment was now concluded. The tension in the axillary glands, which was very troublesome to the prover, continued for several d. On 9th d. of proving chancre-like ulcers were discovered on the prepuce; at first their tips were covered with pus,

after which they became spread out over a pretty spacious depression, exhibiting distinctly the greasy covering of a chancre. They began to diminish next d. after their appearance, and on 4th d. they had dried up, except a little remaining dampness. (*Ibid.*)

4. P—, woman, æt. 30, brunette, fleshy, choleric temperament, venous constitution; regular and in good health, save that for 6 years she had had some mucous leucorrhœa. Took same dose one m. at 10; but it affected her so much that she was unwilling to continue proving. On 1st d., immediately after taking drug bitter, astringent, biting, coppery taste in mouth, inducing nausea and retching; bluish colour of lips and soft parts of mouth; during d. frequent uneasiness in abdomen; at n. violent spasm of the stomach, waking her from sleep; a sort of twisting in the stomach, which extends down into the abdomen; towards m. she had several bloody mucous stools, without any particular pain. 2nd d., soreness in abdomen, with great hunger, abating after a meal, but then succeeded by trembling. Restless n., full of dreams. 3rd d., after dinner a fainting sort of nausea with violent palpitation of heart; she had it three times this afternoon. Extremely painful drawing and heaviness in the os sacrum, down the pelvis, as if the menses would make their appearance. Paralytic heaviness and debility in the lower limbs, so that she knew not where to place them. She feels so debilitated that she is scarcely able to walk across the room, complaining a good deal of rigidity in the calves. She is near falling asleep in e. while sitting in a chair. 4th d., repeated complaints about pain in sacrum and loins; heaviness in sacrum preventing her from sitting still; digging there which does not permit her to stoop; the sacral pain is relieved by standing or walking; the lassitude of yesterday continues to-day, although less, and seems to have become concentrated in sacrum. The catamenia appear a fortnight before the time, flowing only a few hours. 5th d., pricking in the breasts. Swelling and pain of tongue as from submucous ulceration; ulcerated patches on mucous membrane of mouth, especially on l. cheek. Pain in throat when swallowing, as if swollen, or as if a splinter was sticking in the throat. Sticking drawing pain in hip down to tarsal joint. Sticking in l. side of chest. Sticking in the spleen, recurring for several e. in succession. Biting (itching?) in nose. Erection of papillæ on l. side of the tongue. No stool since diarrhœa had passed off (stool appeared on the d. following). The mucous leucorrhœa ceased (it reappeared in a few weeks, was quite bland, and much less copious).

5. Dr. Müller, æt. 36, tall, slender, arterial constitution, melancholic temperament, liable to hæmorrhoids.

a. Took same dose as No. 4 at same time. Soon after taking drug, styptic constriction of mouth, metallic ink-like taste; some h. later, slight attack of nausea in stomach, with chilliness and shuddering, and peculiar feeling of stiffness in lower limbs, also gurgling noise in abdomen. Giddiness as if intoxicated (very transient), most before eyes. Accumulation of much thick, tenacious mucus in the throat, obliging him to hawk, and producing slight hoarseness (all d.). Pain in l. nasal bone as if bruised; rigidity and squeezing in the nasal

cavities. After eating, paroxysmal stitches in liver. Heaviness and drawing in loins, with great prostration and weariness, accompanied with a tumult in the knees and a tremor of the lower limbs, as after a fatiguing walk. The calves feel especially debilitated. Extremely disagreeable drawing and heaviness down the whole l. side of abdomen when standing. Fulness and oppression in the chest with desire to sigh. Accelerated and increased micturition, the urine being copious and pale yellow; passes the urine with a facility which he had never felt before, and which was almost pleasant; the stream was apparently larger. (The facility was only perceived to-day and next d.; afterwards urination became difficult and almost fatiguing, although the quantity was the same.) Woke at n. in consequence of an acute pain in wrist-joint, as if sprained, accompanied with heat in the whole hand and restlessness in it, obliging him to change its position continually. In the m. he found a pimple not far from the joint, with pus in the tip causing a stinging pain as if a splinter were lodged in it. The tip with the pus was surrounded by a red, hard base of considerable extent. 2nd d., violent pain while sitting in sacrum, as if sprained, obliging him to rise (going off after several h.). Violent tearing, digging, raging pain below patella, first l. then r. Peculiar fulness in liver, which was sensitive, with occasional drawing and sticking there, especially when walking, sometimes reaching up into chest. Drawing tearing from knees into legs. 3rd d., violent pain while sitting in sacrum (m.), as if sprained, scarcely permitting him to rise, and not permitting him to walk about except stooping (recurring in the same manner the 4 following d.). 4th d., in m. on waking, tongue is dry as bark; even when washing the mouth with water the dryness is diminished only partly and for a short while; palate and fauces so dry that he found it difficult to articulate; burning pain in velum pendulum, palate, and posterior nares as if sore or as if corroded with pepper. Ringing in ears and diminution of hearing. Fine stitches in spleen in paroxysms. 5th d., through n. head feeling dull and stupid; in m., after waking, forehead feels full, with stinging digging in that region; these pains in the forehead increase after rising. Drawing sticking pain in l. frontal eminence. Had no stool till this m. since beginning proving, though the bowels were generally loose, he having sometimes two evacuations a day; the substances discharged were dry and firm. Clear ringing before the ears, passing into momentary hard hearing with dull buzzing. Itching vesicles on the back, the itching being especially violent in e. and obliging him to scratch; here and there eruptions of small itching vesicles resembling scabies, especially on the chest and back towards the shoulders; intolerable itching at n. in region of boundaries of the hairy scalp in nape. 6th d., restless during n., owing to itching of various parts of body. Light sweat in m. On confines of hairy scalp and nape are seen irregular blotches, which itch violently and are sore when scratched; these blotches become inflamed after scratching for a time and appear to emit a humour. Headache in forehead (excited by drinking coffee), at first a dull drawing, afterwards a stitching pain. This d. the itch-like eruption becomes more intense and spreads more; it becomes especially marked on back. The pains

in throat and nose mentioned above reappear to-day, and are generally found to be constant and obstinate symptoms. 7th d., the eruption dries up (and disappears entirely on the d. following, the itching having disappeared this d.). No more symptoms were now felt save some lassitude, pain in sacrum and throat, and the rigidity and squeezing in nose. On 9th d. he felt quite well.

*b.** Took 10 drops of 2x dil. in water before going to bed. Confusion of head (after ½ h.). Fancies and images crowding upon his mind in sleep. Dull headache whole n. not permitting sound sleep. Wakes in m. from a slumber full of dreams, with painful confusion of head. In m. the lower limbs feel weary. Took 3 drops on tongue without water. R. hemicrania, consisting of drawing with pressure and of heaviness; better at rest; increased by the least motion. General confusion of head the whole d., worst in occiput, in l. side of the head and on the forehead, pressure outwards; frequent and copious discharge of pale urine. Wakes with a sorethroat, as if an ulcer were in throat, on r. side, with drawing and tension upward and downward; sensation as if a splinter were lodged in throat when swallowing, eructating, stretching and moving the throat; between whiles undulatory motions and pulsations therein; dark redness of the uvula and fauces. Early in m., on waking, the eyes burn and feel dry; he had great difficulty in opening them. During the d. the affection of the eyes assumed the following form:—Pressure in the eyes as if too full; heat and pain in the ball when moving or touching it; mucous flocks causing illusions of sight and obliging him to wipe the eyes; in e. the scarlet redness, which had shown itself in the inner canthus of the r. eye already in the m., extended as far as the cornea; the conjunctiva of the ball and the eyelids was congested; pain in eye as if a grain of sand were lodged in it, sticking, itching; grey dots and serpent-shaped figures were seen in the axis of vision; mist before the eyes; the candle-light is not coloured, but rather enveloped in mist; winking; the aperture between the lids is diminished; all these symptoms being accompanied with general debility and weariness, and increased temperature of the skin. At noon, violent tickling in the throat obliging him to cough. Pimple on septum of nose which bleeds easily. Pustule on skin of upper lip arising from a painful red shining blotch. In the afternoon dulness of sense, inattentiveness, inability to think; cannot find words to express his thoughts in a suitable manner, hence want of ease in speech. At 10 p.m. recurrence of the above-mentioned affection of the throat, being this time accompanied with roughness and dryness. In n. cough from tickling in larynx. In various parts of the chest pressing tensive pain in spots the size of a dime (sixpence). Agglutination of r. eye during n. 2nd d., m., it was closed by crusts of dry mucus, causing the lids to adhere and requiring to be washed away before the eye could be opened; when opened it was found to be redder than yesterday; the pressure and heat in eye were more painful; aperture between lids smaller; photo-

* A considerable space of time was allowed to elapse between the different provings on one and the same individual.

phobia. He hawked up yellow-brown mucus tinged with blood. At noon, suffocative cough (recurring several d. in succession). Fever after meal; chilliness, desire to lie down, excessive feeling of illness and prostration; confusion in head. The whole afternoon felt feverish and ill; constant faintness and languor. The inflammation of the eye is better in the cool and open air, but intolerable in the warm room. In e., headache on r. side, heaviness, fulness, and pressure (several e. in succession). On 3rd d., headache on waking; full, heavy, stupefied; the pain becomes intolerable by the slightest movement (lasting almost the whole d.). Pain in l. side of head and forehead, first sticking, then digging, extending as far as the malar bone. Digging pain in r. side of the head. Tearing and twingeing in r. ear. The eyes are filled with mucus; the inflammation is decreasing, but reading continues to be painful. The ulcerative pain in throat is permanent. Cough from tickling in throat. The urethra feels as if closed from swelling, and an ulcerative pain is experienced in it. Burning after micturition. In e., before retiring (and in the early m.), he has a dry, fatiguing cough, produced by a violent itching, almost burning, titillation in the throat. 4th d., hoarseness and roughness in throat. Pain in r. axilla as if strained or torn. Upon raising shoulder, pain descended along arm as far as hand, where a prickling sensation was felt. Paralytic drawing pain in whole of the r. upper extremity. During micturition burning and feeling of contraction in forepart of urethra. Whilst ejaculating the last drops of urine, cutting in back part of urethra as far as anus. Sunken, pale, bluish countenance. Diminished appetite; speedy repletion. Stitches in chest. 5th d., restless night, sleep disturbed by frequent paroxysms of cough; from 4 to 6 a.m., sweat. Dryness of the tongue in the m. In forenoon, accumulation of mucus in posterior nares obliging him to hawk. In e., cough; he is unable to bear the usual smoke of tobacco; dry tongue (e.). In m., during first micturition, he feels a heat in the urethra with itching and tickling. Inability to emit the urine with a free rushing stream. Stoppage of nose and a good deal of itching. A third dose was taken at 10 a.m. on 6th d. of proving. About noon, intense titillation of palate and fauces, causing eyes to run and a fatiguing hacking cough. Scraping in throat. When drinking cold water, and on empty swallowing, a sore feeling deep in throat. Sensation as if dampness were running along the urethra from behind forward. Painful urging in the urethra. After micturition, which left urethra feeling painful as if ulcerated, he again had desire to micturate, but ineffectual. In afternoon, painful heaviness and coldness in the head, with difficulty in collecting his senses and a glowing heat in the head and cheeks. Difficult and fatiguing apprehension. Debilitated and weary. So debilitated in the afternoon that he had to lie down, accompanied with increased warmth in whole body and heat in palms of hands. Going upstairs is very troublesome, accompanied with severe drawing in calves. Rough tongue. Painful blotches in the l. corner of the mouth. Restless, stupefied sleep with horrid dreams. The lips, tongue, mouth and fauces are parched. Next d. tip of the tongue is red and painful; papillæ erect. The l. eye is now affected as the r. was; canthus is red as blood; swelling of

caruncula lachrymalis, it stands out from the canthus like a lump of flesh; intensely red clusters of vessels extend from inner canthus to cornea; relaxation and swelling of the conjunctiva; the secretion of mucus and tears increases. After breakfast diarrhœic stool, during which, after micturating, a burning drop was still running along the urethra. The urine on micturating was a longer time than usual in making its appearance. Vanishing of sight; is constantly obliged to wipe off the mucus which is in the axis of vision. Pain in the head as if it would burst (from mental labour). Does not pass a n. without headache. After a meal, a cough which hinders speech. Paralytic weakness of the lower limbs and emaciation of same. Red swelling of conjunctiva round cornea towards inner canthus; the conjunctiva of eye and lids is blood-red. Looks old; skin of face is tightly drawn over bones, and hence marked prominence of facial mucles. Burning during micturition and feeling of swelling in the urethra; the latter portion of the urine is not ejected freely. Itching and smarting in the l. eye. The headache is worse in the open air. Fulness and heaviness of the head. On 3rd d. tongue and mouth are parched and dry. In m. fœtor from mouth. Itching from nose. Dragging pains when urinating. Sore feeling in interior of urethra even after micturition. The urethra is hard, swollen, and knotty to touch. The r. testicle is hard and larger than usual. Tumour-like itching elevations in the hairy scalp and in nape of neck. Blear-eyedness. Pustule in the l. corner of the mouth. Fixed ulcerative pains deep in throat, apparently in the posterior wall of the pharynx. When yawning and taking a deep breath the pain is changed to an aching. [The phenomena denoting an affection of the mucous membrane in the parts designated above—ocular and palpebral conjunctiva, nose, mouth, fauces, and urethra—were the most troublesome and permanent.]

c. M— took 10 drops of 6x dil. in ½ spoonful of distilled water at 10 a.m. Unusual appetite and great desire to eat. Intermittent dull pressure, as of a foreign body, in the obliqui muscles, near the crest of the ilium. After dinner depression of spirits. The throat feels rough and scraping, as if raw and sore. The isthmus, posterior nares and velum pendulum palati are red. Soap-like, ball-shaped clots of mucus in the throat occasion slight turns of cough, by which the mucus is thrown off. Roughness in the throat excites hawking. The dose was repeated next d. at same h. Soon after taking drug meditative and brooding, with vacant stare. Tickling in the throat as if he had drawn in a little feather, obliging him to hawk. Drawing with pressure in the top of l. shoulder, as if pressed with a load. Prickling itching of various parts of the body, especially marked around l. nipple. Slight astringent sensation about lips, buccal cavity, and tongue. The lips are dry and glutinous without thirst. With constriction of the mouth, confluence of watery saliva. Aching drawing pain in whole abdomen as far as groin, with distension as in ascites. At 10 a.m., and again in the afternoon, long and deep yawning. Yawning and chilliness. Ulcerative pain in small spot in the velum pendulum palati. Peculiar uneasiness and emptiness in abdomen with nausea. Painful urging sensation in groin, more intense when part is touched. Pimples on chin and

cheeks, rapidly filling with pus. Irresistible desire for sugar in e.; after eating it he experiences, about midnight, a fermenting flatulent colic, waking him from sleep, and followed by small discharges of watery fæces, accompanied with emission of a quantity of noisy flatulence. A good deal of urging with the diarrhœa. In the m. he has diarrhœa, as above, but papescent, preceded by colic. Flat taste in the mouth after rising, tongue being white at tip and yellow at root, with sticky, dry lips, without thirst. Nausea as from hunger. Drawing tearing in l. side of patella. Paralytic painful drawing, as if bruised, in rectus cruris muscle, a hand's breadth above the l. patella. Clawing sensation moving about in the pleura, costal and visceral, with slight oppression of the chest. Took 10 drops without any water, 3rd d., at noon. The existing nausea in the stomach is momentarily increased, then suddenly abating. Constant drawing and digging in l. frontal eminence, afterwards accompanied with drawing tearing along whole arm. Undulating tearing in the whole forehead. Stinging ulcerative pain on l. side near stomach, directly below short ribs, made more violent by deep inspiration and by contact. Coitus painful; the urethra feels stretched; want of pleasurable feeling. Ulcerative pain in urethra between acts of micturition, as if a splinter had been thrust into it. At 6 p.m. another scanty brown evacuation. Gnawing pain in l. side near stomach. Disagreeable sensation in the body, moving about; at one time felt in limbs (especially r. upper limb), at another time in head (especially in r. temple). Next d., great debility and weariness of the calves in bed, as after a distant journey on foot. After rising, great nervousness, feeling of weakness, tremulousness, irritated and at the same time fretful mood. In m. he had one evacuation at the usual time, but much less copious than usual. An h. after the first he had a second evacuation, loose and in pieces, very little of it. At 10 a.m. he took 10 drops on the tongue, without water. At 10.30 another paroxysm of yawning, same as yesterday. Not long after that he had a peculiar paroxysm of spasm of œsophagus, developing itself in the following manner: efforts to eructate, with distension of the stomach as if it would burst; the œsophagus is spasmodically closed at its orifice, hence the efforts to eructate are ineffectual, and are accompanied with excessive strangulation and urging pain in stomach, faintish nausea, confluence of water in the mouth, and inability to stir; all this paroxysm ended in frequent and violent eructations, the spasm lasting in all ¼ h., occasionally increasing, and then again decreasing. Rheumatic tearing where thumb joins metacarpus. Clawing in r. anterior cervical muscles like cramp. Confusion of the head, especially after drinking coffee. Stitches and digging in l. frontal eminence (this symptom is perceived several times a d., but more frequently in the afternoon, and is the most constant of all the head-symptoms). He wakes frequently at night, owing to tormenting dreams about putrid waters, fishes, serpents, filling him with horror. He dreams towards m. that an insect had inflicted a deep bite in his heel, burrowing in the wound, and making it necessary that the insect should be cut out. Next d., early in m., on waking, he experiences a violent pressure between the shoulders, which is especially deep seated at angle of r.

shoulder. After breakfast he feels extremely debilitated, nervous, tremulous ; he dares not undertake anything lest he should not succeed. His spirits feel more affected than yesterday. Paralytic drawing in bones of forearm. For some d. past great apprehensive caution has been alternating with light sense of indifference. Drawing in streaks or bands over the surface of the brain, apparently in membranes and sinuses. Drawing in a streak from occiput into middle of brain. Slight digging in parenchyma of the brain, drawing to and fro. Sudden stitches darting through the abdomen, like electric sparks, especially when suddenly passing from a state of rest into a state of motion (only on l. side). Paralytic heaviness in l. lumbar region, extending as far as hip-joint of the same side ; lumbar region feels rigid and tense. Stiffness, heaviness, and paralytic pains from the sacrum along the pelvis and hips. Heavy and paralytic feeling in the region of the sacrum, making it difficult to sit a long while, and obliging him to stretch the dorsal spine as much as possible while sitting. The sacral region feels so painful that blowing the nose and sneezing causes him to start. (*Ibid.*)

6. K. M—, boy of 7, pasty, stout, slightly scrofulous, otherwise healthy. Took in e. 3 dr. of 2x dil. mixed with 10 dr. of water. Immediately emissions of flatulence ; n. very restless, tossed about in bed and spoke out loud. Next d. a good deal of itching in scalp (after 3 d. small itching blotches were found there, disappearing again gradually). Red blotches, changing to yellow blisters upon a red base, on dorsum of r. hand and index finger. Pricking in outer side of r. ankle. 3rd d., violent itching in nose, causing him to rub it until it becomes sore. 4th d., itching in the nose continues. 5th d., a good deal of sneezing ; when sneezing he discharges from nose purulent mucus with specks of blood. 6th d., in the m., much sneezing. Pain and swelling of the r. wing of the nose. After 3 d., when all reaction had ceased, the boy took 5 dr. of same preparation at the same h. The following symptoms made their appearance : At n. colic (?). Pricking in the liver. Rises four times in the night to urinate. Next m. much sneezing. (*Ibid.*)

7. SCHACBERT took gr. $\frac{1}{8}$ in ℥ss of distilled water, in m. fasting, and only remarked a very disagreeable metallic taste, and slight burning in throat. He repeated the experiment several times, but without producing any other symptoms. After taking gr. $\frac{1}{4}$, the burning in the throat lasted a little longer. Then for 3 d. he took gr. ss dissolved in ℥ss of water. The burning sensation in the throat became rather severe. The tongue showed in various places a dark bluish colour, and in the stomach there was a sensation of increased warmth and slight nausea. These symptoms disappeared after taking food. The stools and pulse were not affected. Some time after this S. increased the dose to a grain, which he took $1\frac{1}{2}$ h. after dinner. The burning in the throat was very severe. The tongue showed for several d. a dirty brown colour. The feeling of increased warmth in the stomach increased to nausea and retching, without actual vomiting, and finally gave place to a persistent, periodically aggravated sensation of compression in the stomach, lasting several h., when, towards e., diarrhœa

set in and continued during the following d. With the onset of diarrhœa the pressure in the stomach ceased. The evacuations were thinner than usual, but not altered in colour. In addition to these symptoms there was a distressing dull headache, seated especially in the forehead, and associated with a certain prostration and restlessness. Changes in respiration, pulse, and secretion of urine were not with certainty made out. On the 3rd d. all the symptoms of the drug action had disappeared. Eight d. afterwards he took 1½ gr. in m. fasting. Nausea and inclination to vomit, which followed the dose, he at once suppressed by eating a very copious meal, but nevertheless he felt unwell the whole d., and suffered from a dull headache. (*Diss. de usu Arg. nit. interno*, 1837.)

8. "When I began my experiment I was quite well and strong, but afterwards was not in the same high state of health as previously, and my stomach suffered for several d. after I had discontinued the use of the silver: I frequently had heartburn, from which I had never before suffered, though these symptoms gradually disappeared. On the other hand there supervened an almost constant neuralgic pain in the l. infra-orbital region, that indeed but extremely seldom, and then only for a moment or two at a time, became very violent, and on the whole did not put me out very much, but yet continued uninterruptedly the whole of the following winter. At the same time the action of the heart became somewhat irregular, and the beats at times intermitted, of which I had a distinct disagreeable sensation in the chest. I was in addition tormented with a constant sensation of fulness in the region of the heart. If I turned my attention to the heart's action I felt this irregularity more strongly, but if I moved briskly about, the sensation almost entirely disappeared. Upon my disposition these symptoms had no effect. There were no paroxysms of anxiety connected therewith. The movements of my body were not interfered with. Only sudden, violent, muscular action, as, for instance, the exertion in jumping, or going quickly upstairs without stopping, caused violent palpitation just like emotional excitement. The said disagreeable sensations were most perceptible in a horizontal position, hence in the e. in bed. My sleep was but extremely rarely interrupted by palpitation of the heart. Towards the end of the winter the symptoms diminished in intensity." (Krahmer tells us he did nothing to stop the evolution of the proving.) "Physical signs of anything abnormal about the heart were wanting, as I was assured by a medical friend. With the summer all morbid symptoms had entirely disappeared.

"That these changes in my condition were really the result of the silver I am by no means sure. But in regard to time they occurred after taking it, and I know no other cause for them. I make this communication in order to add the request that those of my colleagues who may have an opportunity of making similar observations may bring the same to my knowledge. Perhaps they might then be able to throw some new light on the subject of the mode of action of silver.

"In observing the action of silver I have endeavoured as far as possible to pay attention not only to all the subjective, but also to

all the objective symptoms; changes in the pulse, temperature, and character of the urine have been especially observed. I lacked the proper apparatus to ascertain the amount of carbonic acid eliminated by respiration. My average pulse in the m. after rising was 66; at noon, soon after returning from my visits, 72; and in the e., after several h. rest, it fell to 68. A strict milk diet, and the taking of arg. n. for more than two weeks, had no effect upon the character of the pulse. My temperature is from 29·6° to 30° R. I examined the urine, keeping account of the total amount, specific gravity, amount of water, quantity of uric acid, urea, and salts of incineration. In order to have correct data I examined the urine from the 6th to the 19th of October. I rose at 6 a.m., breakfasted on two cups of coffee, engaged in reading or writing till 9, visited patients till 1, then took dinner; worked till 5 in my room, made e. visits, took supper at 8, and went to bed about 11. Noon and e. usually drank a glass of beer or wine. From October 19th to November 6th I kept a very strict regular diet; took daily 2293·7 grammes of fresh milk and 418·5 grammes of white bread. October 26th, I took 0·1 gr. of crystallised arg. n. 4 times; 27th, same; 28th, 0·2 gr. 4 times; 29th, same; 30th, 0·3 gr. 4 times; 31st, 0·4 gr. 4 times; November 1st, 0·5 gr. 4 times; 2nd, 0·6 gr. 4 times; 3rd, 0·8 gr. 4 times; 4th, 1 gr. 4 times; 5th, 1·2 gr. 4 times. A consequence of the strict diet was that the stools, which are usually regular, were affected, so that on Oct. 21st one was evacuated only after violent and painful effort, and on the 23rd there was no voluntary stool. After several h. effort to evacuate hard fæces, I took one ounce of castor-oil. In the e. there was a hard painful stool, and the next m. a pasty stool. On the 25th I repeated the oil, and the n. of the 25th and 26th I took in addition an extra half ounce, which was followed next m. by one hard and one soft stool. On the 28th took 2 oz. oil followed by four loose stools; also on the 29th; and from the 29th to the 2nd of November I took daily a tablespoonful of castor-oil, so that the stools continued without great difficulty. After November 3rd I did not require the oil, as the large amount of silver nitrate kept the fæces soft. November 2nd my stomach began to suffer. At noon, after taking milk and bread, I experienced a pressing sensation of fulness in the epigastric region. November 3rd, especially towards e., the whole abdomen was very tense. November 4th, there was violent headache and I could scarcely force myself to take the necessary amount of nourishment. The n. was restless; I could not remain in bed after 4 o'clock. On the 5th I was still more averse to food, though the taste was natural and the tongue not coated. Through the d. I had violent headache. The following n. was very restless. I rose at 3 o'clock and took nothing but a glass of milk before noon. The headache was very violent. In the afternoon, after passing the last quantity of urine for examination, I took two cups of strong black coffee, after which I felt relieved. Supper was relished, but the next d. I could take but a small quantity of food on account of heartburn. The action of the silver seemed to cause a sense of satiety, and my stomach seemed to need less nourishment than in a state of health. In a subsequent trial I took in the m. ¼ grain of crystallised arg. nit. with white sugar dry on the tongue.

I immediately experienced a very bitter taste, followed by warmth on the tip of the tongue, then in the pharynx, after which these two symptoms seemed to alternate with each other. I drank a little distilled water, which was followed by slight eructations and a sensation of catarrh in the fauces and larynx. At noon, before dinner, I swallowed the same dose in a drachm of distilled water. I experienced a sweetish taste and feeling of warmth in the mouth. Three h. after dinner took ½ grain in distilled water. The sensations were the same as before, but perhaps more severe. The scraping sensation in the pharynx provoked hawking and coughing. After ¼ h. I had a sensation of warmth between the scapulæ and sternum, which gradually changed to slight pressure in the epigastric region. This was attended by tasteless eructations. The next m. I took 1 grain in water, and had only a very bitter taste, and after 10 m. very transient nausea.

"The relation of the urea to the solid constituents in my case is somewhat less than that of another observer mentioned by Simon in his *Handbook*. I had an average of 26·3 per cent. of urea, perhaps dependent upon the peculiarity of my diet, which is generally vegetable. Under the effects of the milk diet this percentage rose to 37·6, and the amount of uric acid became quite small, which during my ordinary diet was 0·6, but was now reduced to ·045. The amount of urea was perceptibly changed, the daily diminution being 1·5 gramme, and the uric acid entirely disappeared from the urine, under the influence of silver. The amount of incinerated salts during the milk diet remained very constant. After several d. use of the silver it rose considerably. In the e. of November 6th there was found 0·127 gramme of pure silicic acid; so far as I know no analysis of urine has shown a like amount of silicic acid. No changes were noticed in the circulation or temperature. Silver was not found in the urine." (KRAHMER, *Das Silber als Arzneimittel betrachtet*, 1845.)

9. *a*.—The prover was a prescription-clerk in an old-school pharmacy, aged 21, intelligent, sceptical as to the action of infinitesimal doses, and quite ignorant of the pathogenetic properties of nitrate of silver. He was in good general health and free from constitutional dyscrasiæ. He sought Dr. Brewer's advice for a catarrhal condition of the mucous membranes, for which the silver was recommended. (The malady and its changes are expunged from the proving.) In consideration for his vocation and prejudice a low trituration was ordered—1 gr. of the nitrate of silver to be triturated with 4 drachms of sugar of milk; of this trituration 1 gr. to be taken twice daily. Misapprehending the directions, he took 1 gr. of the nitrate twice a d. for 3 d. 2nd d., felt tired on waking, and apathetic in mind and body, but believing he might have taken a slight cold he continued the nitrate as before. 3rd d., in m., felt so ill that he again visited his doctor. The whole head was heavy and full, but frontal sinus the focus of greatest intensity. The operations of the mind were sluggish, so that continued thought required special effort; yet when the mind was so exerted the bad feelings in the head were in no respect enhanced. He stated that the compounding of a prescription was peculiarly irksome at the time, as

his mind would aimlessly wander from one subject to another unless he exercised constant effort. In the mouth was a disagreeable metallic taste. The tongue was red and clean, the throat congested, especially at the posterior part, and felt hot and burning. Deglutition unaffected. Tonsils of normal size and appearance. The abdomen below umbilicus felt distended, or as if there was a weight on it. This sensation temporarily abated when flatus was passed, the flatus being discharged without pain and without effort. The bowels, which for weeks had been moving regularly once a d., now moved more frequently, there being two stools on the 2nd d. and four on the 3rd. The stools consisted of a greenish semi-solid mass, made up of lumps of undigested food and mucus, passed with some flatus. The prover was quite sure that their odour was very peculiar, but he could not describe it. Defæcation was free from tenesmus, or burning, or any other abnormal sensation. On the anterior wall of the rectum, about an inch above the sphincter, was a hot burning spot (prostate gland ?), unaffected by stool. Dragging and weight in the hypogastrium, which at times amounted to actual burning pain. Micturition temporarily palliated the distress, hence the prover urinated frequently, yet the urine could be easily retained without appreciably affecting the distress. The urethra from meatus to bladder felt hot and burning, but at the meatus and below the scrotum were foci of greatest intensity. The lower extremities, especially the legs, were fatigued and seemed too weak to support the body. At times they felt as if they would suddenly fail him.

This ended the first proving. The medicine was stopped. Dr. Brewer says he "considered it desirable that the prover should again take silver, but in the dose originally recommended, gr. $\frac{1}{240}$, thrice daily." He does not mention any interval as taking place between the discontinuance of the larger dose and the commencement of this; but there probably was one.

b. Second proving.—Gr. $\frac{1}{240}$th with sugar of milk thrice daily. 5 d. later, on rising in m., weary and oppressed in body and mind. His ambition seemed to have fled. Even trivial duties were burdensome. He only desired to sit and think. About noon small running chills developed along spine, and followed each other in rapid succession; meantime the face and extremities became flushed and hot. Towards 6 the chills ceased and intense sleepiness set in. He felt that he could not keep awake; notwithstanding, on retiring he remained awake thinking, the thinking when yielded to absorbed the desire to sleep. By 10 he had become so engrossed in thought that restlessness and real wakefulness followed. This continued until about midnight, when he went to sleep. The sleep was disturbed by monstrous dreams. The condition of the mind in sleep seemed but an extension of its state in working hours, for the patient stated that all through d. he was disinclined to talk, but took a morbid delight in building air-castles. The head felt dull and full. No visceral tenesmus or burning. The bowels were unaffected, except that they felt oppressed along the lower half of the abdomen; some flatus was passed. The prover, recognising the effects as similar to those of the previous attack, stopped the silver, and

reported the symptoms as recorded. The symptoms at once decreased in intensity, and in 2 d. had disappeared.

c. Third proving.—4 or 5 d. later the dose was renewed. 3rd d., on waking in m., head felt full and confused; it ached all over, but with increased force at l. frontal eminence, temple, and occiput. He described the pain as heavy aching. At indefinite periods the occipital pain would cease, and the pain in the temples increase. The pain in the l. frontal eminence remained constant and unvarying. The head felt enlarged and weighty; occasionally slight vertigo suddenly appeared and ceased. Some relief was afforded to the pain by tightly binding or pressing the head; cold air also palliated. The eyes were sensitive to light, and smarted and burned after long use. The lachrymal secretion was somewhat increased. Face pale. Peculiar, fœtid, metallic taste in the mouth. Tongue coated at base with yellow fur, and felt dry to the prover, though to touch and sight it was moist: drooling during sleep. Slight thirst. Congestion of the throat, with a slight burning soreness on the right side. Dysphagia. Slight flatulent distension of the lower half of the abdomen: it felt greatly distended and oppressed. Emissions of flatus temporarily relieved the heaviness. Stool normal. The urinary organs were markedly affected. In the urethra, during and after micturition, there was an intense burning, at times amounting to a stabbing pain; there was also a sore and swollen feeling. At irregular intervals the cremaster muscle would contract spasmodically and draw the testicle high up into the scrotum. With this spasm a drawing pain extended into the testes. Independent of the cremasteric spasm, although sometimes associated with it, was a pain in the testes and scrotum, as from pins and needles, worse in the right side. The lower extremities, and especially the legs, were weak and tired as after prolonged exercise, yet the amount of exercise taken had not been unusual. A short walk exhausted. He said he felt as though he had experienced a long illness. In the afternoon and e. the feet were cold. In the lower lumbar and sacral regions the same lassitude was felt as in the gastrocnemii. About noon small chills developed along the spine, and with them a sensation of heat and increased lethargy. The hands and feet were not cold but rather hot, as also was the head. The chills appeared in the upper part of the spine, close to the occiput, and extended downward to the extreme end of the coccyx, bnt did not radiate from the spine. Warmth dissipated them for a time. Neither motion nor open air affected them. About 5 o'clock the chills subsided; no sweats followed, but profound sleepiness set in, a sleepiness so intense that the prover retired 3 h. earlier than was his custom. He did not fall asleep, however, but only lay enchanted by a vivid imagination. This elysian state lasted till nearly 10 o'clock, and then slowly faded away. Then the prover became restless—the bed felt burning hot, the legs and back ached, and the brain seemed too large for the skull. With these feelings he tossed about till near midnight before sleep came. Before falling asleep he noticed that the palms of the hands, the lower part of the abdomen, and the inner sides of the thighs were bathed with perspiration. 4th d., med. discontinued. All symptoms as yesterday. Sleep disturbed by bad

dreams. 5th d., a burning spot is noticed in fore part of rectum, about an inch above the sphincter, and is aggravated by urinating. Micturition is more frequent, and the hypogastric tenderness is increased. The headache has become intolerable. Administered 1 drop of the tincture of actæa r., and repeated it in 2 h. This removed the headache. Has lascivious dreams during sleep. 6th d., the headache is gone; the legs are less weary, but the lumbo-sacral lassitude persists. The chill appears regularly at 12 m., and ends about 5 p.m., without sweating. Dreamed of snakes last n. The rectal burning is very annoying. 7th d., no change from yesterday's condition; stools normal. Abdomen still distended and oppressed. 8th d., same as yesterday. Chill as usual. 9th d., the rectal burning became so distressing that I prescribed ac. nitric, 1_x, gtt. v every 4 h. 10th d., abdomen still oppressed. Chill as yesterday. 11th d., weakness in sacrum and legs much less; the chill did not appear. 14th d., ac. n. discontinued. Rectal burning nearly gone. 22nd d., burning spot in rectum occasionally felt, especially at n., but is not distressing. 25th d., the prover is well again. (Dr. E. P. Brewer, in *Hahn. Monthly*, July, 1883.)

15. Dr. Lembke, 20th Feb., 9 a.m., took 20 drops of a solution of 1 gr. in an ounce of water. 21st, 8.30, 30 drops. Almost the whole d. pressure and heaviness in forehead, heaviness over eyes, which were not freely opened, aggravated by stooping. Towards e. this pain abated. About 10.30 p.m., whilst sitting, suddenly on r. parietal bone a violent drawing upwards; immediately after pressure in l. side of forehead, then deep in the r. wrist, drawing in r. side of lower jaw and r. knee. To-day (22nd) whilst walking, several times a sensation as if the heart beat once or twice stronger, without, however, any hindrance to the walking, or any oppression of the breathing. 11 p.m., drawing in r. toes, strong pressure at the top of l. shoulder when the arm was at rest; drawing in the l. toes, and flying about to the parts named, noticed first after 10 p.m., not during the d. Drawing in the middle of lower edge of r. orbit, then in lower jaw both r. and l. side, in lower molars, then in the forehead. Urine dark yellow, acid. Shooting pains round about r. olecranon, rather violent and lasting; neither movement of elbow nor pressure had any influence on the pain, but it was somewhat increased during rest of the joint. 23rd, 8 a.m., 30 drops. Tearing in l. side of forehead, inside l. knee, then in r. knee. 8.30 a.m., sensation in upper part of l. forehead like a moving about in the skin. 3 p.m., pressure in l. shoulder-joint. 4.30 p.m., the beating in the forehead as before, lasted 1 h. Drawing on under edge of r. orbit at 5 p.m. and again at 9.30. Pressure in l. wrist at 10.30 p.m. 24th, 6 a.m., pain in l. side of forehead as above. Tearing in internal aspect of elbow. Pressure in r. temple. 8.45, 30 drops. Pressure in r. temple. 10.30, frequent micturition. 25th, 8 a.m., a teaspoonful of above-named solution. Pain in forehead as above. 9 a.m., drawing in l. hand. About 4 p.m. another teaspoonful; pressure in lower edge of l. orbit, and, 5 p.m., several times in r. wrist. March 1st, a teaspoonful at 7 a.m. 8 a.m., pain in forehead, as before on l. side. Weight and pressure in fore part of head, lasting whole d., apparently worse on going into open

air, leaving off towards e., not aggravated by eating. 9 p.m., violent shooting in inner canthus of r. eye; during the forenoon it seemed to me that I passed urine more frequently and more copiously, which was darker yellow than usual, especially in proportion to the quantity of fluid drunk. In e., on the other hand, there was strikingly little urine, contrary to habit. On 2nd, at 4 a.m. and 6 a.m., urgency to urinate, with very little urine, which was dark yellow. 4th, 8 a.m., a teaspoonful. Drawing in skin of forehead in l. side; in skin of l. cheek sensation as if a spider's web lay on it, which was repeated. Pressure on r. side of top of forehead, and in r. nipple from within outwards. 9 a.m., violent pain in l. wrist. About 9 a.m. strong urgency to micturate; urine copious, bright yellow; weight and pressure in forehead lasting all d. 8th, 3 p.m. (3 h. after food), ½ a teaspoonful of 2 gr. in ℥j of distilled water. About 6 p.m. drawing in skin of l. cheek and in l. side of the forehead. 10th, 6.30 a.m., 1 teaspoonful. Drawing in skin of both cheeks. 7 a.m., tearing in r. tibia and, 8 a.m., behind r. ear. About 9 a.m. very tired and sleepy. Pressure in l. eyebrow. 11th, 7 a.m., a teaspoonful. Pressure in r. knee 8 a.m. Boring deep in r. orbit on lower edge; pressing drawing through the whole r. arm 8.30 a.m., sometimes more violent on back of hand or in upper arm; then prickling in sole of r. foot while sitting. Pressure in l. side of frontal bone, especially on frontal eminence, sometimes stronger, then slighter; this pain persisted, changing sometimes into sensation as if there was a band over forehead, aggravated by motion. Sticking in point of l. little finger. 9 a.m., drawing in front of l. leg. 1 p.m., pressing together in the whole l. leg whilst walking.. Violent boring in l. forehead whilst walking at 1.30, and directly after feeling of pressure on chest, without palpitation, causing him to take deep breaths, lasted ½ h., came and went whilst walking, returned an h. afterwards, also whilst walking, but only lasted a short time. During the whole d. has passed urine more frequently and more copiously. 9 p.m., sticking in knuckles of third right finger and on back of foot. Pressure in l. side of the forehead, drawing in l. cheek. In e. unusually great hunger which could not be appeased; also in m. of 12th. In n. of 11th micturition three times, much urging thereto, but little urine about 5 p.m. 12th.—Violent pressure in r. knee, also whilst walking, lasted an h., then shooting pain deep in tongue, lasting about an h. 10 p.m., tearing and pressure in middle of lower edge of r. orbit in several attacks whilst sitting; touching or pressure has no influence; at same time much thin saliva in mouth, and again shooting deep in point of tongue with a bitterish taste or like soap and water. Thereafter pressure anteriorly in under part of r. leg, and then the same pain in the r. orbital edge, either at the same time or alternately with the shooting in the tongue. After this pressure in l. ankle, then on back of r. foot, immediately after the former pain in orbital edge. 11 p.m., whilst sitting, these pains were repeated several times, then drawing in all teeth of under jaw, but pain always went by preference to, and was most frequent and most violent at, the lower edge of the r. orbit; this last pain remained when I went to bed at 11.30. Suddenly, whilst lying quite quiet on the back, pressing in the throat and violent, short,

dry cough without tickling in the larynx; after this I soon went to sleep. Woke in n. through urging to urinate, felt the former pain at the orbital edge, but the cough did not recur at all. 13th, 7 a.m. Whilst sitting, drawing in l. instep. 8 a.m., a teaspoonful. Boring in l. frontal eminence. 8.30 a.m., drawing across whole forehead, lasted to-day only a short time. Early urging to urinate, 8.45. About 3 p.m., whilst walking, sensation of pressure in region of heart without palpitation or cough; it was not necessary to stop whilst walking, but only the need of breathing deeper occurred, and the same condition remained on one occasion after I was resting quietly in my room. 15th, 8.30 a.m., 2 teaspoonfuls. Pressure in r. knee whilst sitting and walking, and on back of l. foot. Drawing in r. fingers. Pressure and drawing across forehead and beneath l. eye. During whole d. pressure and weight in front of head, worse on stooping. Strong pressure anteriorly in r. leg, later in l. knee, 6 p.m. At 9 p.m. drawing through lower incisor teeth, not made worse either by cold air or warm drink; then drawing in upper part of chin, under the skin. 16th.—After rising, drawing internally in middle of r. upper arm, then in muscles of r. thigh, inferiorly and internally. 6.30 a.m., 2 teaspoonfuls. Boring in upper half of l. eye at 9 a.m. and later. Drawing in l. knee. To-day and on 17th, here and there as if a plucking, only always in little spots, of upper arm or thigh, behind ear, on l. cheek, burning in tongue, on a little spot of back of one or other hand, on inner protuberance of knees, whilst sitting and walking equally frequent. For several d. I have been two or three times to stool daily; the stools were softer than usual, no difference having been made in the manner of living. 17th.—At 1 p.m., whilst sitting, violent shooting and tearing below l. internal ankle, making me get up and walk about quickly, with which the shooting and drawing gradually passed off. At 5 p.m. same pain returned but less strongly. Later, drawing on back of l. foot and in second joint of l. forefinger. At 8.30 p.m., whilst walking, the drawing under the l. inner ankle came again very painfully, also passing off during walking. In n., on waking, the same sticking in circumscribed spots of limbs. The same happened also on 18th on little isolated spots of head early in m., about 1 p.m. Strong boring, increasing by fits and starts, at the top of r. side of head whilst walking, also on one quite narrowly-bounded spot; the same in l. temple at 10 p.m whilst sitting, and after ½ h. in r. temple. Somewhat later, the same pain more to the l. in the forehead. 19th, 6.30 a.m., soon after rising the same pain above l. ear. 8.30, strong pressure in pit of stomach for a few m. and immediately after pressure on back of r. foot. Drawing in l. thumb and on back of r. hand. In course of d. same pains in head as yesterday but less strong, also the plucking in circumscribed spots in the limbs. On 20th, 21st, and 22nd, before 6 a.m., I awaked through sudden call to stool; the evacuations were copious, bright yellow, half liquid, painless, without tenesmus; and soon after the same necessity occurred again, sometimes without result, besides two stools daily; no alteration being made in the diet; the appetite might be called slight. The plucking in various circumscribed spots of the limbs and head occurred on these days also. 23rd, 9 a.m., a bright

yellow, copious, semi-liquid, peculiar evacuation. 27th, 8.45 a.m., 2 tablespoonfuls of a fresh solution of 2 grains to the ounce of distilled water. Between 11 and 1, whilst walking, sensation of trembling at heart without obliging me to stand still, without shortness of breath, occurring several times. About 12, whilst walking, pressure on a little spot on back of l. foot, which also passes off whilst walking, without being increased by any motion of the foot; about 1.30 the same sensation whilst sitting. Repeated severe drawing in lower incisors whilst sitting, not aggravated by anything. In n. and on m. of 28th frequent need to pass water, which was darker than usual and only passed in small quantity. 28th, 8.30 a.m., 2 teaspoonfuls. At 9 a.m. pressure in l. forehead and r. knee; boring in frontal bone. Shooting in point of tongue, repeated several times later. Frequent urging to urinate the whole day. Tearing on l. side of skull at 5 p.m. and in r. instep. Frequent pinching in inner corner of both eyeballs. About 8 p.m. boring on lower edge of l. orbit, then strong pressure on one small spot of r. shoulder. About 9.30 p.m. boring at both sides of glabella, then drawing in l. toes. 29th, 7 a.m., boring in l. temple, l. side of forehead then r., recurring several times during d. 8 p.m., violent boring in l. temple, 10 p.m. in l. shoulder-joint, worse by moving it. 11 p.m., in bed, violent boring in l. temple and l. frontal prominence. 5.30 a.m., the same in bed and after rising at 6 a.m. 30th, 7.30 a.m., 2 teaspoonfuls. Since yesterday I noticed in the l. wrist, on bending it, leaning on it, &c., a tension and stiffness with a deep-seated pain, disappearing towards e. 7.45 a.m., a slight stool, but much passage of mucus from the rectum. Dull pressure in r. ankle and upper half of r. patella. 8 a.m., whilst sitting, tearing in l. frontal eminence, then on right cheek. Drawing through end of urethra. 8.30, creeping in skin of l. cheek. Drawing in l. toes, on r. side of skull, in l. shoulder, in l. frontal eminence, which recurred several times during d. 7 p.m., whilst walking, violent pricking in small spot now over, now at side of r. knee, seemingly in the skin. 9 p.m., pains through joints of l. forefinger, increased by bending finger, with which a difficulty in moving joints was experienced as from swelling, which also lasted till m. of 31st. 31st, 7 a.m., 2 teaspoonfuls. Frequent shooting in r. eyeball, tearing on r. side of skull in various small circumscribed spots. 8 a.m., pressure in l. knee and r. ankle whilst sitting, later in r. thigh. Boring in r. temple 9 a.m. All these pains recurred often during d. At 2 p.m., whilst sitting, the above described sensation in heart. April 1st, 6 a.m., on rising head heavy, and tearing in it as yesterday. 8 a.m., tearing in l. ankle. The urine passed at noon is slimy and turbid, and the vessel, as far as the urine reached, was coloured with a red coating; the urine passed at 5 p.m. is clear and yellow. On all these d. stool twice daily, in other respects not unusual except that it was softer. 2nd, 7.30 a.m., drawing in l. shoulder, l. side of head, and forehead. 8 a.m., 1 teaspoonful (completing the ounce). Drawing anteriorly and inferiorly in the r. leg whilst walking, tearing in r. frontal bone. As previously the pain was confined to one small spot. The affection of the l. index finger noticed on March 30th lasted till to-day. Boring in r. temple; shooting in tip of tongue, 9 a.m.

2 p.m., violent boring above l. eyebrow. In l. cheek a wandering pain like a creeping. 5 p.m., wandering boring in upper half of forehead. Drawing through l. lower limb whilst sitting, and in l. little finger, which is painful when moved. 11 p.m., violent boring in l. temple, then the same pain, but constant, two or three fingers' breadths above r. ear. In e. pain in l. forefinger had almost entirely ceased. 3rd, 7 a.m., small, hard stool, but much mucus from rectum. Drawing in l. toes. Shooting in tip of tongue. Boring in temples and head as yesterday, and in e. violent drawing through whole r. lower limb whilst sitting; whilst walking, in l. calf a peculiar sensation like shooting, also like a hot fluid running over the skin. 6 p.m., drawing through lower incisor teeth with a sensation of their being raised. 4th, in m. on rising, tearing on top of head, and about 8 a.m. a stronger tearing across skull. Drawing in knees and r. thumb. Boring in frontal prominences, fore part of head heavy. Tearing here and there in forehead all d. If pain in head ceased for any time, drawing occurred in the finger-joints, or in one knee, or in a little spot of r. upper arm a plucking as before described, or a similar pain in one leg. On all these days frequent urging to urinate. Towards 9 p.m. pains in forehead ceased, has remained here and there in limbs. 10 p.m., violent shooting in r. eyeball. In l. arm much pain on bending it or leaning on it, as on a former occasion, recurred again on 5th. Violent shooting in r. eye on 5th. 6th, 11 p.m., 1 teaspoonful of a 3 grains to the ounce solution. No pains. 7th.—On rising, heaviness and pressure in forehead, drawing on l. cheek, boring in l. frontal eminence, drawing in r. toes and r. forearm. 8.30 a.m., 1 teaspoonful. Anteriorly and inferiorly in r. leg, pressure on one circumscribed spot, several times; then in l. inner ankle, and in l. shoulder. Boring in l. frontal eminence, in head two fingers' breadth above the r. ear, and in r. shoulder. 12 noon, much clear urine, frequent urination. Whilst walking a pressing pain came on in the soft parts below and in front of l. trochanter, which when stepping caused the joint to bend under him, which did not recur at each step, or each movement, yet happened very frequently. Boring in r. upper orbital edge. 3 p.m., whilst walking, pain in l. calf as in cramp. Shooting in l. cheek several times, in point of tongue, and in l. toes. 8th.—Before taking dose some pains in cheeks, ankles, and shoulders. 7.30 a.m., a teaspoonful. 9 a.m., shooting and drawing in l. cheek. Drawing in outer edge of r. foot and l. side of forehead. Pressing in l. wrist and r. knee, equally strong whilst walking or sitting, also frequently later in the d. Violent boring in l. temple at noon. Frequent shooting deep in l. ear. Whilst walking, on outer side of l. calf, in a small spot, violent pain compelling him to bend the leg; also, whilst standing, same pain; it lasted a few m. and then went away entirely. Violent boring on r. side of back of head; 4 p.m., in r. shoulder. Drawing in r. fingers. 7 p.m., urging to urinate, copious bright-yellow urine. Oppressive feeling at heart without dyspnœa; even quick walking is quite possible without causing aggravation. 9 p.m., whilst sitting, same violent pain in outer side of l. calf. Strong shooting deep in l. side of chin, then through the r. molar teeth, then in upper back teeth. 10 p.m., whilst sitting, strong pressure in soft

parts above r. knee-joint, in l. little finger and back of r. foot; these were all repeated. 11.30 p.m., in bed, the pain over the knee-joint, also the following m. on rising, and subsequently. 9th, 7 a.m., drawing, anteriorly and inferiorly, in l. leg, in under part of l. forearm, in several finger-joints, in l. side of forehead, and joint of l. knee, equally strong whether sitting or walking; also frequently recurring later. Boring in upper and lower r. orbital edge, later over l. ear, and higher up. Here and there creeping drawing in skin of front and l. side of nose. Otherwise the same pains as yesterday. 10 p.m., burning in tip of tongue, and a peculiar bitter taste (but not that of arg. nit.) so long as the burning lasted. 10th, 6 a.m., on rising, much shooting in l. eyeball, more especially in its under part. 8 a.m., boring on r. side of top of head. Drawing on r. cheek. Boring deep in both sides of chin. The heart affection was felt frequently to-day as yesterday. In general to-day weariness and heaviness of limbs. Much inclination to fall asleep whilst sitting, also yesterday. Two or three liquid stools daily, much mucus. 11th, 8 a.m., very violent and lasting pains, shooting and beating, in tip of l. forefinger for 5 m. Boring in l. frontal eminence. In e. some pains in limbs. 12th, 5.30 a.m., in bed, violent boring in l. outer ankle, and in l. shoulder, at 8 a.m. in r. side of head and l. wrist. The heart pain as on former days. Violent shooting and drawing in r. toes. Violent tearing on head, now on r. side, now on l., also at 11 p.m. on l. frontal eminence. 10 p.m., indications of the pain so powerfully felt behind and below inner l. ankle on March 17th. Drawing in back of foot and in toes of l. side. 11 p.m., strong boring in r. upper orbital edge. 13th.—Much weariness and inclination to sleep whilst sitting; also former pains. The same on the 14th. 15th, 8.30 a.m., 1 teaspoonful. Boring in r. elbow; burning in tip of tongue; pressure and drawing in l. frontal prominence, l. ankle, in soft parts of one or other thigh, always in the small spot; drawing in the l. toes, in one little spot of one or other calf, pressure in front of l. knee, in various parts of dorsal muscles, and on top of shoulders. Also whilst walking pressure in knee came on, stronger whilst stepping; the pains generally came on whilst sitting as during motion. Drawing on l. cheek and top of l. side of the head. Several times shooting in l. eyeball. Boring in r. upper orbital edge and on frontal bone. These pains were felt the whole d. with little intermission, always in the same circumscribed spot. In n. many dreams (which seldom happens with me) of places where I was once, of persons whom I likewise saw once; everything relating to time and proportion was tangled and confused. 16th.—Before taking the dose some of the above-mentioned pains. 8.30, 1 teaspoonful. 9 a.m., on l. side of the top of the head a drawing like a creeping prickling; then same in front of and over the r. ear. Drawing and pressure in frontal bone, in several spots of one or other forearm, also in one leg, and in r. side of nape of neck below hair border. 3 p.m., persistent tickling in larynx; inspiration did not increase it, but rather seemed to lessen it; short dry barking cough, scarcely ever ensued whilst sitting; I had not been speaking continuously or anything of the sort. Drawing on l. side of top of skull, extending downwards to above and behind the l. ear; pressure did not aggravate it. 4 p.m.,

shooting in knuckles of r. hand. 17th.—Several of the above symptoms. Burning shooting in l. zygoma, then in r., at 5 p.m. on outer edge of l. orbit. Shooting in tip of tongue, also in e. 6 p.m., strong boring in r. temple. 9 p.m., pricking deep in r. ear. Strong tearing and boring in upper part of forehead on l. side, and l. zygoma. Pricking in l. inner canthus. In first part of night restless dreams of long faintly illuminated walks, along which glided peculiarly clothed figures, which on my advancing to meet them receded, and on my retreating followed me at same distance. On waking, tearing on one side of head. 18th, 7 a.m., tearing on l. side of head, on back of r. foot, and on lower and fore part of r. leg. Pressure on r. wrist. 8 a.m., 1 teaspoonful. Boring in temples and l. frontal bone; pressure in knees on sitting or walking. The former pains: pains in joints, soft parts of arms and legs, always in single isolated spots. 19th, 6 a.m., in bed, tearing in head, in temples, and in first phalanx of l. forefinger. Boring in back of r. foot, directed inwards whilst sitting. 8 a.m., 1 teaspoonful, which completes the ounce. Boring in temples and shoulders; shooting in zygomas, drawing behind and below r. inner ankle. 9 a.m., the former pains are repeated, especially much drawing in fore part of head with pressure and heaviness, lasted several h., equally severe whether sitting or walking; also at 11 p.m. some pains. Stool all these d. normal. General health undisturbed. 20th.—In m. languid, great inclination to rest. 8 a.m., from r. nostril a few drops of blood came out without blowing, touching, or moving it, or anything of the kind. Pains in forehead, cheek, and limbs; much yawning and sleepiness in forenoon; frequent shooting in meatus of urethra; also 11 p.m. in bed. Violent pressing in lower and anterior part of r. leg. 21st, 6 a.m., in bed, violent boring in r. frontal eminence to side of head; shooting in tip of tongue several times. The former pains, but moderate. 22nd, 8 a.m., one teaspoonful of fresh solution of 3 grains to the ounce. Even before the dose, some pains in the toes and knees, shooting in tip of tongue; violent shooting deep in r. ear and around it at 10 a.m. Pressure in front of r. knee continued, appearing and vanishing whilst walking. 2 p.m., drawing pain in little spots in soft parts of thighs and calves, especially in upper part of l. thigh; also on m. of 23rd. 23rd, 8.30 a.m., 1 teaspoonful. Boring on both sides of l. tendo Achillis; frequent urging to urinate and shooting in tip of tongue; drawing in r. upper teeth 5 p.m. several times, also in lower right back teeth; cold or heat had no effect. Towards 5 a.m. violent pricking in rectum, which recurred on 24th after rising. Boring in r. ankle, in l. upper orbital edge, in front of the l. ear and in several finger-joints. 25th.—The same. 26th, 8 a.m., a teaspoonful. The same pains on the frequently indicated spots. Stool since last mention always slimy. In e. and in m. of 27th, in bed, some pains in limbs and head. 27th, 8 a.m., 1 teaspoonful. Before dose boring and tearing in several spots of leg, fingers, forehead, and sides of head. Shooting in l. eyeball. Remarkably violent pressing at same time in both elbows and into the forearms, 9 a.m. Boring in frontal eminences, zygomas, and knees, as before, behind and below l. inner ankle, whilst walking at noon, more violent than the last time. Violent lasting shooting in the last phalanges of

the l. forefinger; later the same in the first r. toe. Towards e. on two occasions palpitation by movement of the body. 28th.—The same pains, only feebler, especially in the e. for several h.; much shooting and burning in the r. eyelids. 29th, 8.45 a.m., 1 teaspoonful. Just before taking dose pains in the joints and face. Otherwise the same pains as on the 27th. 30th, 8.30 a.m., 2 teaspoonfuls, which completed the ounce. Boring in r. lower orbital edge and behind and below l. inner ankle-bone whilst walking, 9 a.m., with which the pain, so to say, was felt in the heart, and in the chest a kind of unrest arose which absolutely compelled me to walk about; the same took place at the other times when this pain occurred. Palpitation and feeling of uneasiness in heart, as well when standing as in gentle motion, several times. Frequent urination. Shooting in r. eyeball, 4 p.m., afterwards the other pains in limbs and tip of tongue. May 1st.—Marked boring in circumscribed spots of single joints and soft parts of limbs, in forehead, and side of head. Strong scent seemed to increase considerably these head pains. 2nd.—Same pains, especially boring in several parts of head. 3 p.m., tickling in larynx and spasmodic cough. 3rd.—Same pains; also pressure in stomach in several attacks without any known dietetic cause. On all these d. frequent urging to urinate with copious urine, bright yellow and acid. The quantity is considerably increased compared with the fluid imbibed. 4th.—The same pains. May 5th, 8.30 a.m., 1 teaspoonful of a 4 grains to the ounce solution. The same pains. 6th, 3 p.m., a teaspoonful. Urine not increased. 7th, 3 p.m., 1 teaspoonful. After this marked frequency of urging to urinate; urine copious, yellow; after urinating cutting at meatus of urethra. Frequent palpitation on slight agitation and also by more rapid movements. After this the former pains. 8th.—The same pains, also palpitation, as yesterday. 9th, 8.30 a.m., 1 teaspoonful. Shooting in r. toes; pressure in both wrists. Boring in various places of head, in r. cheek, r. knee. r. temple, on a little spot of outer side of r. calf. All these pains were repeated. Several n. cramp in the calves. 4 p.m., 1 teaspoonful. Besides the other pains marked boring in frontal prominences, on upper orbital edge, especially l.; also again at 10 p.m. At 6 p.m., whilst walking, violent pain in muscles on l. side under arm, along under part of chest to lumbar muscles, increased by each breath, lasting 5 m., and being increased by walking. Boring in the lower inner l. orbital edge, 11 p.m., repeated in the course of the d. 10th, 8.30 a.m., 1 teaspoonful, and 9 a.m., 1 teaspoonful, which completed the ounce. The same pains as yesterday, especially the boring in the lower inner orbital edge of both sides; subsequently below and behind l. inner ankle whilst walking, in various parts of the frontal bone, the pains equally frequent whether walking or sitting. A strong cold wind which lasted several d. brought on no increase of the pains. About 2 p.m. much tickling in the larynx without cough. In n. of 11th many dreams. On the m. of 11th palpitation on slight movement, the former pains being repeated. Pricking in rectum. 12th.—Same pains. Shooting several times in rectum and l. eyeball. On following d. urine much more scanty and dark. There appeared, now and then, pains up till 27th in limbs and head, especially boring in the forehead and side of the head.

There were taken altogether 15 gr. of argent. nit. The weather caused no amelioration of the symptoms. Coffee seemed sometimes to aggravate; but I am not quite sure of this—for I drank, since March 1st, in the m. and after midday a coffee made of cocoa-husks or barley. The l. side appeared to be more frequently and powerfully affected. The pains also came on in n., but more frequently during d. They were as frequent and strong during rest as during motion. The mucous membranes were not very much affected, only the increase in the quantity of the urine was conspicuous. The action was powerfully manifested in the nerves of the head, face, under-jaw, and upper and lower limbs. The back gave little sign of being affected; on one occasion, however, it was the seat of very painful symptoms. The action on heart and larynx was decided. Shooting in the ears and eyeballs, no symptoms in the conjunctiva. The pains in the limbs were especially on little circumscribed spots, frequently changing their seat; nevertheless, under the date 30th of March, we read of very long-lasting symptoms. The most violent pains were those of the upper and lower orbital edges, in the forehead, and below and behind the l. ankle. (*Neue Zeitschr. f. Hom. Klin.*, xi, 130.)

16. Dr. Byres Moir took 1st trit. for several d., in doses of gr. iss to gr. iij, but the results were too meagre and dubious to be recorded. (Dr. Clarke's provings, *communicated.*)

17. W. F. C—, 18, medium height, slight, fair hair, dark eyes, nervous-sanguine. Has had sorethroat lately, but has been well of it some weeks. Is subject to headaches. On Aug. 27th, commenced to prove 3rd dil., taking 10 drops in ½ oz. of distilled water at 11 p.m., before retiring. The dose was repeated on seven consecutive n. The symptoms continued for one or two weeks after the medicine was stopped. 1st d., clayey taste in mouth immediately after dose. The same taste was noted after the dose the following n. 2nd d., dry sensation in the throat. Pharynx reddened. 3rd d., throat feels well, and is not so red. On each posterior pillar of the fauces is a long white patch, as if they had been touched with solid nitrate. Just after tea (5.30 p.m.) noticed his palate felt sore and swollen. On examination it was found quite white as if it had been cauterised, and somewhat swollen. The pharynx was at this time red, the white patches were gone from the fauces. In the m. I had touched the under surface of the tongue with the cork of the bottle containing the tincture being proved, moistened with the tincture undiluted. By the afternoon this spot was found to be becoming white. On the following d. (4th) the spot was still distinguishable by its whiteness from the surrounding mucous membrane. The whiteness of this spot was never so dense as that of the patches on the pillars of the fauces and palate. This experiment was made to try how far the phenomena of the fauces and palate might be due to the local action of the tincture in passing over the surfaces whilst being swallowed. The fine mucous membrane under the tongue would show, I thought, any local effects the tincture might be capable of producing. There was no immediate effect when I touched it with the undiluted tincture. Nothing was felt and nothing was seen; and I was not a little astonished in the e. to find a distinct though faint

white mark at the spot I had touched. It was not nearly so densely white as the patches in the pharynx and palate. On the 5th d. pharynx very sore again in afternoon; red; and at root of left posterior pillar a milky patch. 6th d., throat feels sore, white patch all but gone. On going to bed last n. a stuffed sensation in the chest, as if in for a bad cold. Out of sorts all to-day. 7th d., much rumbling of flatus in the n. Eyes bloodshot in the m. The eyes became worse. On the 8th and 9th d. could not read at n., and on the 9th he had smarting; on 11th eyes almost clear. 10th d., teeth inclined to ache. 12th, the same on the r. side. 20th d., throat and œsophagus sore and burning. I now gave him Ars. 6, gtt. j t. d., and in the e. the burning sensation was all gone. The pharynx remained congested and tender long after the proving. (*Ibid.*)

18. Dr. J. H. Clarke, 28, medium size, spare, sanguine-nervous, being in perfect health, except for slight afternoon flatulence, and an undefined feeling of oppression at the epigastrium, soon passing away, noticed each afternoon for some d. previously, began to prove argent. nit., Aug. 17th, 1881. The proving lasted 19 d., the effects 31 d. The dilution taken was the 6th centesimal, and the dose 10 to 12 drops in an ounce of distilled water, between 11.30 p.m. and 1 a.m., just before retiring. 1st d., soon after the dose a sensation of warmth at the epigastrium. 1½ h. after, a styptic sensation in throat. A metallic-astringent taste was noticed after the dose all through the proving, and at length became persistent. On the 10th d. it was noticed that warm tea seemed to develop it. On 9th and 13th d. a feeling as if cauterised noticed in uvula. On 16th, 17th, and 18th days the taste of silver was very strong. 8th d., fine superficial sticking in eighth rib about centre, at times during d. 9th d., pricking in the eyes. 11th d., sneezing and coryza. 14th d., eyes gummed, smarting on waking, better after getting up. Pricking in l. eye. Headache over coronal sutures, passing to eyes and root of nose. 4 p.m., sore pain in upper and inner part of r. eye when reading. 15th d., aching in r. eye and nose, with same kind of headache. 17th d., eyes smart on closing them. 18th and 19th d., very bloodshot, smart by gaslight. 20th d., much better. 21st d., gone on rising. 24th d., painful. 10th d., pricking itching in a minute spot at back of neck, among the hair near hair border. Tenderness of tendons at back of r. index finger. Slight aching in r. molar teeth, in good condition. 11th d., slight transient aching in l. teeth. Tenderness of tendons at back of l. middle and r. index fingers continues, with hyperæsthesia of skin over them. The hyperæsthesia extends up in a line from the finger to the outer condyle. During the d. the hyperæsthesia spread all over dorsum of r. hand to ulnar side, all up back of forearm, outer side of upper arm, shoulder, and r. side of face. The finger-joints became tender and stiff; outer side of head of ulna and olecranon very tender to touch. Shooting pain through metacarpo-phalangeal joint of index finger, felt also at elbow. The skin-sensation was like that of erysipelas, increased sensitiveness with diminished power of distinguishing sensations—a hyperæsthetic-anæsthetic condition—without any objective symptoms. Immediately after e. dose metallic taste with oppression and pain as if

indigestion, slight nausea, burning of forepart of tongue. Spread of hyperæsthesia to r. side of body, dull pressive headache (r. side), scalp tender. 12th d., hyperæsthetic sensation increased. Slight tic (shooting pain) in face, not in head; head tender to cold. Slight stiffness in finger-joints. R. arm tender, and slightly painful, especially at shoulder, to move. 7 p.m., hyperæsthesia affects outer side of l. hand, and skin over distal end of l. ulna. Metacarpo-phalangeal joints of 3rd and 4th l. fingers tender. 10.30 p.m., under l. eye an elevated spot, size of split pea, with red base, looking like a blister, but only semi-fluid. It was seen before felt. There was a little burning. (This was unlike any urticarious spot I have seen, and I never, to my knowledge, had anything of the kind before, though I have frequently since, and do now—1883—very rarely.) On the 13th d. this spot had nearly gone, and another appeared on margin of r. lower eyelid. On the 22nd day, on both lower eyelids, on tarsal edges below the lashes, a spot of the same kind. In e. throat felt dry. On examining it a small irregularly oval white patch is seen at the back of the pharynx looking exactly as if it had been touched with lunar caustic. 14th d., pricking in the throat making the r. eye water. 13th d., all symptoms lessened: no dose taken the previous n. Sick feeling in m. and afternoon, coming between meals and not interfering with the appetite, which is as good as usual. Muscles of r. side of neck sore and stiff. Skin of r. shoulder tender, irritated by brace, though r. brace not tighter than l., aching pain on motion and tenderness of muscles at back of r. scapula. Tenderness gone from hand and ulna (r.?). Pain in middle of back. 14th d., irritable urticarious spot back of r. shoulder. Muscles of shoulder still sore. Itching in perinæum. 16th d., slight return of hyperæsthesia in r. arm; it had almost vanished, soreness of muscles gone. Burning in back of arms after dinner. 17th d., increase of hyperæsthesia of r. arm, especially outer side of elbow. On 19th d. it was very marked in r. arm and felt slightly in face. On 23rd d. it returned again; 24th d., it was gone except from a patch on back of r. arm. On the 27th d. it returned again with slight tenderness of small joints, and in e. was very bad. On the 30th d. it was all gone. Shoot in r. side of face over ramus of jaw. 15th d., pains round the loins passing off into flatus. This recurred frequently afterwards. On the 16th d. pain was as of slight band across loins. There was an aching in centre of back; and a dull pain in sacrum. On the 17th d. there was general weakness of lower limbs; ascending stairs was much more of a labour than usual. Dull pain in centre of back at r. of spinal column. On 19th d., in afternoon on standing, pain in sacrum and down thigh. 21st d., rather severe pain on rising in r. sacro-sciatic notch, where the nerve passes out. 22nd d., a good deal of back-ache, especially in r. sacro-sciatic notch. On 23rd d. the backache had gone. 16th d., rumbling of flatus in body, slight pain in abdomen (this on retiring after midnight, shortly after the e. dose); after rising in m., sick feeling, with some belching and pain in abdomen. 17th d., feeling of looseness in bowels, with slight pain in lower abdomen. 22nd d., pain at r. of epigastrium and great tenderness. Giddiness (after dose repeated at noon). 17th d., slight giddiness on rising with slight headache. After the evening dose,

nausea and slight giddiness. 20th d., tenderness of under part of r. heel on treading. Shoots longitudinally in r. and l. sides of chest at different times. Shoot in r. ear whilst walking almost making me stop. (*Ibid.*)

19. MOLL took doses of crystals from gr. ss to gr. ij. They caused first disagreeable sensation of stoppage in gullet and stomach; then feeling of warmth in stomach, with rumbling in bowels and escape of flatus. In larger doses drug occasioned compression of stomach, weight at scrob. cordis with involuntary urging to sigh, palpitation, tremor of limbs, general prostration, giddiness and singing in ears. There was usually added to these remarkable dryness of tongue, intense thirst, annoying choking at gullet, and obstinate constipation. (*Handbuch der Pharmacologie*, ii, 133.)

II. *Poisonings.*—1. E. H—, æt. 21, was brought to the St. Louis Hospital in a seemingly moribund state, from having swallowed a solution of arg. nit. The patient presented the following symptoms: Complete loss of consciousness; insensibility of all parts of body; upper limbs and facial muscles agitated by convulsive movements; jaws firmly clenched, eyes turned up, pupils much dilated and insensible to light; pulse full, natural, 70. There were stains of nitrate of silver on the fingers. A glass of a solution of salt (½ drachm to the ounce) was administered every ¼ h. He had received much magnesia and inert matters before admission. Towards 3 a.m. an amelioration was manifest; muscles of face no longer agitated, jaws relaxed, pupils less dilated. 6 a.m., continued insensibility of lower limbs, sensibility obtuse in upper; face strongly injected; patient experienced violent pains in epigastrium. 8 a.m., no change in appearance; sensibility a little less obtuse. Asked about quantity of poison he had taken, he could not answer, but indicated it by sign of figure "8." The administration of salt solution was kept up all this time, and now he was limited to emollient drinks. Noon, sensibility returned in all parts of body. Epigastric pains. The patient recovered speech. He said he had taken 8 drachms of fused silver suspended in cassia water. 3 p.m., he fell into coma difficult to describe, lost intelligence and sensibility, pulse 95. This lasted 2 h. 7 p.m., sensibility and intelligence had reappeared, and the patient passed a fairly tranquil night. At 8.24 a.m., he fell again into his habitual coma, persistent loss of intelligence and obtuse sensibility. At noon he was found in a satisfactory state; he complained of epigastric pains, but the sensibility and intelligence had reappeared; by e. he could raise himself up and drink without help. On the 25th, about 9 a.m., the patient experienced a new crisis, but much less strong than the preceding, and in the e. he was found playing cards with his neighbours. The following days he steadily progressed, but felt violent epigastric pains up to his departure on the 29th. (POUMAREDE, *Journ. de chim. méd.*, 1839, p. 434.)

2.—*a.* A medical pupil, while touching a small ulcer beneath the tongue of a child aged 15 months with a stick of nitrate of silver, ¾ inch long, which he held in his fingers by one end wrapped in paper, had the misfortune to let it slip down the child's throat. Almost immediately the child vomited some oily matter supposed to be cod-liver

oil and milk, the oil having been taken shortly after breakfast. When the vomiting had ceased, and within a few m. of the caustic being swallowed, common salt was given in considerable quantities, after which the child was slightly convulsed. Again vomiting took place, and now the matter ejected had a white curdy appearance, and no doubt was principally chloride of silver. The administration of salt was repeated frequently. Vomiting and convulsions occurred at short intervals till 11.30. (The caustic had been swallowed at 9.30.) At that time there was a copious liquid stool containing a quantity of the white curdy substance. At 1 p.m. the child fell into a composed sleep which lasted for ½ h., after which convulsions returned with increased violence and continued until 3. The extremities then became cold, the face pinched, the skin clammy, and the pulse almost imperceptible; the child died in violent convulsions at 3.30 p.m., 6 h. after swallowing the poison.

b. Post-mortem exam., 25 h. after death.—Child was well nourished and appeared to have been in good health. Cadaveric rigidity well marked. Under the tongue a small hard swelling, ulcerated on the surface, corresponding to the orifice of Wharton's duct. No marks of nitrate of silver in the mouth, but in the œsophagus two or three small patches of corrosion. The stomach contained 2½ oz. of inodorous fluid; mucous membrane pale except one point of ecchymosis, and a large patch of corrosion, interrupted transversely in several places, but extending from the cardiac opening along the greater curvature for 4 in. It was ½ in. wide at the cardiac end, and 1½ in. at the end nearest the pylorus, and was of a brilliant white colour. In the duodenum and the first 12 in. of the jejunum, the valvulæ conniventes presented a similar corrosion over nearly their whole surface, but of a greyer colour. This was not washed off by a gentle stream of water, nor by rubbing with the finger, by which, however, loose white particles were removed. There were no morbid appearances in the other parts of the alimentary canal, in which about 3 oz. of fluid were contained. The other viscera were healthy. Heart empty and contracted. Mucous membrane of trachea normal. The contents of the stomach, ileum, and rectum, were separately analysed. In each there was a considerable quantity of chloride of sodium, most in the stomach, and least in the rectum; and of course, therefore, in none of them was there any nitrate of silver. The white patches rubbed off the corroded spots in the stomach and off the valvulæ conniventes proved to be chloride of silver. (SCATTERGOOD, *Brit. Med. Journ.*, 1871, p. 527.)

3. In large doses it sets up nausea, vomiting, diarrhœa, with colic; mostly also symptoms of an intense disturbance of the nerve-life of the whole economy, great faintness and depression, often stupor, want of breath. Sometimes there are cramps, convulsive contractions of this or that set of muscles, even paralysis of the limbs. (OESTERLEN, *Handb. der Pharm.*, 1856, p. 128.)

4. Nitrate of silver gives rise to heat in the pharynx, and irritates the digestive organs by its immediate impression on the mucous surfaces. It frequently excites colic and alvine evacuations the first time that it is taken. It has been seen to produce vertigo and transient

blindness. It has caused an increased secretion of urine. (BARBIER, *Traité de Mat. Méd.*, p. 588.)

5. A woman aged 58, widow, and mother of several children, feeble indeed, but otherwise enjoying continuous good health, noticed in the year 1857 that her hair was growing grey, and endeavoured to hide this mark of commencing old age by the use of a pomade compounded with lunar caustic, which she applied every fortnight. In January, 1860, the following operations of the cosmetic came out: dyspnœa and palpitation; soon after, œdema of lower limbs and ascites: the forces failed, and the patient was compelled to keep her bed.* After the lapse of a month, the œdema of the lower limbs was removed, but in place of it a slate-grey colouration of the skin appeared, which, like the ascites, remained permanent. On June 15th, 1860, the patient was brought into the hospital, when the following symptoms presented themselves: The skin of the legs showed, besides the slate-grey colouration, a hardness and tension which made it impossible to raise up the skin in folds, so that it assumed the complete character of brown sclerema; nevertheless the sensation, temperature, and transpiration of these parts were normal. The legs were bent up towards the upper part of the thigh through contraction of the muscles, and were in such an advanced state of emaciation that they looked like the legs of a mummy. On the upper part of the chest and on the hands appeared a faintly-marked brown colouration. Auscultation of the heart and arteries gave the signs of commencing anæmia. In other respects all the organic functions are performed regularly and satisfactorily; there was only a slight degree of ascites; and the urine, which was passed in normal quantity, and without inconvenience, was in no way abnormal in its constituents. At first sight it might be doubted what was the nature of the peculiar colouration of the skin, and especially it might be thought to be Addison's disease; in the meantime the characteristic colour of the hair and scalp soon led to the right track, and in answer to inquiries the above-mentioned history was given. Here, through the use of a pomade of nitrate of silver the same effect was called forth as in other cases following the internal use of argent. nit. That a deposit of nitrate of silver under the skin really ensued, was also established by this means, that by repeated application of a solution of iodide of potash the skin-colouration was made decidedly clearer. The ascites was undoubtedly owing to the anæmic condition,† which, on its part, found its explanation in the injurious action of the nitrate of silver. The indication for cure was to change the silver into a colourless and insoluble compound, as, perhaps, the iodide of silver, and by this means favour its removal from the organism. The internal administration of iodide of sodium, and the use of warm baths, had, indeed, a surprising effect, and after about a month's use of these curative measures, the patient found herself in the following condition:

* Roget also relates a case in which an epileptic having taken arg. nit. longer and (he suspects) in larger quantity than he intended, her health suffered materially in consequence; she became emaciated, and was reduced to a state of alarming debility, from which she was several months in recovering. (COOKE, *Nervous Diseases*, ii, 2, 151.)

† Wedemeyer relates, in Rust and Caspar's *Repertorium*, xix, 454, a case of argyria

The dark slate-colour of the lower extremities had become a light brown ; the skin was white ; the muscles had lost their contraction and permitted the extension of the legs. The light-brown colouration of the chest and hands was quite lost ; the ascites, indeed, still remained, but was essentially diminished ; the anæmic symptoms were very much lessened by proper substantial diet which the patient was ordered. The patient was so satisfied with her condition that she would not wait for further completion of her cure, but left the hospital. (GAMBERINI, *Med. Neurgkt. Ztg.*, 1861, p. 6. Dr. G. adds—"By the recorded cases we can confirm the observation of Lelut that the abnormal colour has its site in the corium and that the epidermis is free.* Herein the very fixed skin alteration differs from that produced by outward contact with lunar caustic, with which the epidermis is chiefly concerned.")

6. Stephen Martin, 18, sensible and temperate, always had good health till attacked by fits at 15. He could assign no cause. Dr. Badeley thought they possibly originated in the stomach, where there was great acidity. The fits occurred at nncertain intervals after the first attack, generally about every 3 or 4 weeks. They left a violent pain in the head, and particularly in the eyes, continuing next d. Between the fits and sometimes on their approach, he felt a sensation like flashes, or quick passing vapours behind his eyes, followed by a bewildering feeling, with a violent pulsation in the head, and a temporary deprivation of sight, so that he could see only a small part of anything at a time. These sensations were removed with the fits by the use of argent nit. unassisted, after leeches, blisters, emetics, mercurials, bark, steel, zinc, valerian, and turpentine had failed. The turpentine he soon discontinued, from the violent irritation it excited in the bladder. The argent. n. was taken in doses of gr. iss three times a day, made into pills with bread-crumb, and continued a year and a half. The fits gradually lessened in frequency till they entirely left him. The pills had no purgative effect. "The dark colour did not make its appearance till some months after the fits had left him. As there had been no return of his complaint, I had not seen him for a quarter of a year ; but upon calling as I passed through the village, his mother desired me to observe the alteration that had taken place in his complexion. Not having seen or read of a similar effect from that medicine, and having given it in such small doses, I did not impute it to that cause. Indeed, the disease being cured, I paid little attention to his colour, till I read the cases published by Dr. Roget in your 7th vol. These induced me to take an early opportunity of calling again, when I found the colour of his skin greatly increased, although he had discontinued the nitrate of silver 6 months. It is now near two years, and his face still retains the leaden colour, his bosom rather darker with a purple hue, the roof of his mouth,

induced in an epileptic, in which the patient died of diseased liver and dropsy. —EDS.

* "It (silver) is never found in combination with the cellular elements, or embedded in the intercellular substance, but is rather found deposited in the basement substance of the connective tissue, and in the homogeneous membranes allied to connective tissue." (NOTHNAGEL and ROSSBACH, *op. cit.*)

inside of his cheeks, and back of his tongue dark; the tunica sclerotica much discoloured. As blisters on negroes rise white, I applied two to Martin and found they did the same, which, I think, proves the seat of the colour to be in the rete mucosum. He has been now perfectly free from any symptoms of epilepsy during two and a half years." (BADELEY, *Med.-Chir. Trans.*, ix, 235.)

7. HELLER (*Archiv*, i, 324) found no silver in blood or urine of patients taking it for a length of time, whereas fæces contained it largely. He also found gastric juice precipitate it as chloride, and concludes that this passes through the alimentary canal unchanged. But the discolouration of the skin fully proves that absorption does take place when the medicine is exhibited in small but long-continued doses. (PEREIRA, *op. cit.*)

8. A patient was treated with arg. nit. for a hemiplegia for 2 months. On Feb. 19th she complained of her mouth, which presented signs of a stomatitis characterised by swelling of the gums, which were of a dark red, with violet border near the teeth, and a very great sensitiveness of the mouth, especially to heat; metallic (not fœtid) odour of breath; no salivation. In spite of suspension of drug this increased next d., but on the 21st, after chlorate of potash, it subsided, to return slightly on March 5th. (*Bull. de Thérap.*, 1866, p. 86.)

9. A man, accustomed for 12 months to dye his hair and beard with a strong solution, suffered from general weakness, confusion of thought, loss of memory, tinnitus aurium, and defective sight, which symptoms ceased soon after stopping the dye. (Quoted from Schmidt's *Jahrb.* for 1874, by Dr. PHILLIPS, who adds—"Within my own experience I have known men suffering from the same cause, with giddiness, vertigo,* and marked nervous depression, amounting almost to melancholia, and recovering quickly after ceasing the application." —*Mat. Med.*, p. 391.)

ARNICA.

Árnica montána, L. Leopard's bane. Nat. Ord., *Compositæ*.

I. *Provings.* 1. HAHNEMANN, *Fragmenta de Viribus Medicamentorum positivis.* Contains 117 symptoms from self and 33 from authors.

2. IBID., *Mat. Med. Pura*, vol. i of original and translation. Contains 591 symptoms from self and 9 others, and 47 from authors.

3. *a.*† ASSMANN, on Feb. 26th, 1823, at 5 p.m., drank 2 oz. of infusion (= 7 grs.). In spite of careful filtration it caused considerable scraping sensation in mouth and gullet. Constrictive pains in stomach

* "Graves observes that when given to persons affected with various diseases, it occasions vertigo and headache." (STILLÉ, *op. cit.*)

† Throughout Jörg's provings of this plant (*a*) will denote preparations of flowers, (*b*) of root. Hahnemann's provings were mostly made with the tincture of the dry root.—EDS.

then came on, lasting 1 h., and then decreasing gradually in severity. When these had somewhat abated, head became confused and there was dull pressing headache under parietals and in neighbourhood of lachrymal fossa. This ceased during n. after increased perspiration. On following d. there remained general lassitude, heaviness of head, and inability to work long or hard. March 3rd, 1823, 5 p.m., after 4 oz. of infusion (= 22 grs.) experienced all above symptoms but less markedly. A new effect of larger dose was that at 9.30 p.m. diarrhœic evacuations took place with slight cutting pains in bowels; this was repeated thrice at short intervals next m.

b. On March 8th, 1823, at 6 p.m., took 6 drops of tincture * mixed with ½ oz. water. Repeated belchings followed immediately; 15 m. later tympanitic distension of abdomen followed by severe cutting pains in belly which increased until 9 p.m. and only ceased during n. During e. had repeated foul-smelling eructations but without relief to other symptoms. Same effects followed doses of 12 drops on 10th and of 24 drops on 14th. After 62 drops on 17th felt very soon pressure at stomach with feeling as if xiphoid process was being pressed in, stabbing under sternum, vertigo, pressing headache in parietal bones and in orbits, palpitation, and quickened pulse. These symptoms lasted all e., disturbed sleep considerably, and lasted with varying severity till a.m. on 19th (? 18th); bowels meanwhile sluggish, hunger increased, although appetite was considerably diminished. Same results followed dose of 84 drops on 19th. (JÖRG's *Mater. zu ein. Künst. Heilmittellehre*, 1825.)

4. *a*. ENGLER, on Feb. 17th at 5 p.m., took 4 oz. of infusion (= 7 grs.), and felt after 1 h. pulse somewhat slower and irregular; during following n. was restless and often disturbed by dreams. 24th.—After 4 oz. (= 15 grs.) noticed immediately burning scraping in oral cavity and gullet, repeated belchings, and during e. irregular pulse. Following n. was restless. Next m. on rising noticed peculiar painful feeling down back similar to that caused by continued stooping over hard work, but lasting only ½ h. Half h. after similar dose next d. superficial pressive pain between shoulders set in and lasted nearly 3 h. Same pain was experienced next d. after similar dose, but affecting more r. subscapular region and lasting nearly 4 h. March 5th, 6 p.m., took 4 oz. (= 30 grs.). Scraping in gullet more marked, and in 10 m. pressive pain between shoulder-blades, proceeding apparently from posterior wall of stomach, made itself felt, and disappeared only next m. During n. was restless and had lively dreams. (*Ibid.*)

b. Took from 6 to 36 drops of tinct. of root without result.

5. *a*. HEISTERBERGK (Feb. 17th, 5 p.m.) took 8 oz. infusion (= 15 grs.); after 10 m. noticed pain in region of stomach; this increased by degrees and lasted nearly 1 h.; judged by feeling it seemed as if walls of stomach were drawn spasmodically together. Pulse 75 to 80. On 24th after similar dose noticed nothing but considerable distension of abdomen, which came on a few m. after dose, and lasted nearly an h. On following d. (25th) after similar dose same symptom was present and lasted nearly 1 h. When this had disappeared heaviness and con-

* Prepared from arnica root one part, rectified spirit (80 deg.) six parts.

fusion of head came on to moderate extent, lasting about 2 h. On 26th, 15 m. after taking 4 oz. (= 22 grs.) noticed moderate sensation of cramp in stomach lasting about 8 m., 1 h. after dose confusion of head also came on but only lasted 1 h. (*Ibid.*)

b. Took from 6 to 65 drops of tinct. without any but local effects.

6. *a*. KNESCHKE on Feb. 22nd took 4 oz. of infusion (= 15 grs.), and whilst swallowing dose noticed peculiar scraping burning sensation in mouth and gullet followed in few m. by heavy pressure in region of stomach; former lasted 30 m., latter 1 h. On Mar. 3rd after dose made from 22 grs. experienced same effects. After quiet n. awoke next m. with severe stabbing pains in forehead and occiput, lasting all d. In addition, appetite was poor, bowels sluggish, and mental faculties impaired. Next d. after good n. rest felt quite well. Repeated same dose on 7th and noticed immediately above-mentioned scraping in throat, soon accompanied by considerable pressure in region of stomach; former lasted only ½ h., latter continued nearly 2 h., and during last h. stabbing pain in forehead and region of temples came on and did not leave him all e.

b. June 29th, 8 a.m., took ½ oz. of infusion (= 5 grs.) (experiments with tinct. having proved as fruitless as Heisterbergk's); after 15 m. fulness of stomach came on accompanied by slight pressure in upper and anterior part of stomach, lasting till 11; from 11 till 3 felt strong pressure in l. side of œsophagus, pointing upwards, and accompanied at times with rather severe stabbing. At mid-day had no appetite. From 1 till 4 head became confused, had frequent inclination to sleep and felt disinclined for continuous exertion. Effects of drug seemed to have disappeared by e. June 30th, 8 a.m., repeated dose, shortly after taking which stomach felt full and remained in same condition until after 10; pressure in œsophagus in same spot returned shortly before 12 and lasted about 2 h. Confusion of head coupled with inclination to sleep and disinclination for all active exertion lasted whole afternoon; these attacks passed off at 5 p.m. (*Ibid.*)

6. *a*. SEYFFERT, after dessertspoonful of infusion taken at 5, 8, and 11 a.m. and at 2, 5, 8, and 11 p.m., noticed each time frequent belching, scraping in throat, drawing in region of stomach, and lasting confusion of head; also frequent micturition, colour of urine being normal. Repetition of experiment produced same symptoms, and in addition an indescribable malaise and disinclination for work.

b. After doses of tinct. varying from 20 to 60 drops taken in an oz. of water suffered from scraping in the throat, repeated belchings, confusion of head and frequent evacuation of flatus during the e. (*Ibid.*)

6. *a*. STRÖFER on Feb. 17th at 4 p.m. took 4 oz. of infusion (= 7 grs.). Burning scraping in throat came on at once, accompanied ½ h. later by nausea; vomiting could, however, be avoided. On 21st repeated dose and besides above effects noticed increased secretion of saliva, troublesome unpleasant pains in region of stomach, frontal headache lasting about 2 h. and only vanishing finally after supper. March 3rd, 6 p.m., took 4 oz. of infusion (= 22 grs.), and experienced symptoms of former doses, but much more acutely, especially secretion of saliva, nausea terminating in vomiting, rush of blood to head, and frontal

headache; from this as from previous doses found arterial pulse stronger than usual. (*Ibid.*)

b. STRÖFER's trial of tinct. of root was fruitless as that of others.

7. *a.* WINKLER on Feb. 25th, at 6 p.m., took 4 oz. inf. and immediately after swallowing noticed severe burning in throat, gradually descending through œsophagus to stomach, lasting in mouth and gullet ¾ h. In stomach this burning changed into pinching and pressing, and continued through small intestines as constrictive pain, accompanied with much movement. Abdomen became distended, almost tympanitic; this was relieved by walk in open air. Towards 8 p.m. a notable change took place in the abdominal symptoms; there remained at this time sensation of gnawing hunger, although all desire for food was wanting and W— had dined at 5 p.m. This hunger lasted whole e. and was still troublesome when W— fell asleep towards midnight. On awaking in m. was suffering from severe headache, which increased to such an extent that he nearly fell down from giddiness on going out into open air at 8 a.m. Headache ceased at 10 a.m., but nausea and lassitude lasted till mid-day. (*Ibid.*)

8. *a.* GÜNTZ. June 24th, 1824, 8 a.m., aftter ½ oz. felt immediately in throat and œsophagus (especially in anterior walls) a scraping lasting 5 m.; plentiful secretion of thin saliva, and nausea, but without going on to vomiting; 10 m. after dose pressure in stomach came on, increasing gradually to cramp-like pains and lasting nearly 2 h.; these pains diminished after a meal of bread and milk at 10 a.m. On 25th, 8 a.m., took 2 oz. (= 20 grs.); scraping in throat and increased secretion of saliva followed, but to a smaller extent; 15 m. after dose cramp in stomach came on, and continued for 2 h.; after this frontal pain set in, lasting about an h.; during afternoon colicky pains in abdomen occurred from time to time but without any evacuation of bowels; during n. slept very little because of a violent attack of bleeding from the nose. 3 oz. of infusion (= 30 grs.) 26th, and ℥j on 27th, produced same effects.

b. July 2nd, 8 a.m., after taking tincture and smaller doses of infusion without result, took 3 oz. of infusion (= ½ drachm) and felt soon after dose slight scraping along gullet. 3 p.m., perceived transient stitch in umbilical region which appeared to have its seat in small intestines, and lasted ¼ h. 3rd, 8 a.m., took 4 oz. (= 1 drachm); after ½ h. dull pain came on in frontal region and lasted until towards e.; at 6 next m. was attacked by pressing pain in r. hypochondriac region, which came and went, appearing to have its seat in liver or duodenum, and vanished at noon. (*Ibid.*)

9. *a.* JÖRG, after doses varying from 3 to 20 grs., obtained following results: Peculiar slight burning or scraping biting in throat extending through œsophagus to stomach, somewhat like heartburn, and lasting ¼ to ½ h. Soon after repeated belchings, at first with taste of drug, accumulation of saliva in mouth, and inclination to vomit without nausea, accompanied by feeling as if pharynx were swollen and prevented swallowing; these three symptoms vanish and reappear several times during next few h. About 1 h. after taking drug cramp-like constrictive pain begins in stomach, causing pain generally, but mostly in

posterior wall of stomach, as if this were being pressed against spinal column and as if latter were made sore at same time above and below situation of stomach. Two or three h. after dose slight cutting pain in small intestines comes on, followed in ½ h. or 1 h. by distension and swelling of small intestines with frequent urging to stool, relieved at times by diarrhœic evacuations, at other times by passage of small and tough fæces with much wind. Final effects are pressure in head, confusion of same, usually one-sided rheumatic headache, and vertigo, lasting 1 to 3, 4, or even 5 h. Pain at stomach frequently changes, after 1, 2, or 3 h., into ravenous hunger, although appetite and digestion remain diminished.

b. June 30th, 8 a.m., after ʒij of infusion (= 2⅓ grs.) felt slight fulness in stomach and slight belching up of flatus, followed at 11 by slight dulness in head, which resolved itself at mid-day into general weariness, lassitude, and somnolence; although these passed off after dinner, felt between 3 and 6 p.m. fatigued and disinclined for mental exertion. July 1st, 10 a.m., took ½ oz. of infusion (= 5 grs.); felt immediately some scraping in throat, later on fulness of stomach and distension of abdomen, with frequent passage of flatus and urging to stool, although more constipated than usual; 3 to 6 p.m., again felt confusion of head and distaste to work. Next m. at 5 a.m. on sitting down to my work-table was surprised by severe pain in spinal column, such as would be felt by suddenly standing upright after long stooping: this cramp-like pain was not situate in the muscles of the back, but in the inner soft parts of spinal column, appearing at times as if posterior wall of stomach were pressed forcibly against anterior surface of spine. Two h. later pain was concentrated more in upper part of spinal column, between shoulder-blades; by mid-day all effects had passed off. On repeating dose 2 d. later same symptoms were produced, pain in spinal column lasting this time 2 h. and proceeding apparently from stomach. (*Ibid.*)

10. *b.* Frau Ch. took ½ oz. (= 2½ grs.); no scraping was produced, but moderate burning feeling in throat, less nausea and sinking, more pressure at stomach than from infusion of flowers. With this pressure at stomach was coupled at times feeling of emptiness and ravenous hunger, although there was complete loss of appetite and disinclination for all food. In afternoon she suffered from pressive headache, especially in forehead. Pressure at stomach was repeated from time to time, accompanied by unpleasant feeling of fulness, although stomach was empty, and also frequent acrid feeling in oral cavity lasting till 3rd d. after taking drug. (*Ibid.*)

11. *b.* L— after similar dose noticed no symptoms in digestive tract, but from 11 a.m. till 10 p.m. felt confusion of head with frequently recurring inclination to sleep and distaste for active exertion. (*Ibid.*)

12. Eight members of the Vienna Society of Physicians proved A. in form of ext. of flowers, of which gr. j—xij were taken daily. Phenomena observed from its use were:

a. In *digestive organs*, flying pains in abdomen, epigastrium, and r. hypochondrium; eructation, disgust, yawning; dryness of mouth and throat; burning of tongue and palate; oppression of stomach; increased appetite; flatulence; firmer and less frequent evacuations.

b. In *vascular system*, stronger beat of heart; frequent blowing of nose with traces of blood; slight epistaxis; swelling of hæmorrhoidal vessels.

c. In *nervous system*, confusion and fulness of head; slight pressure; partial headache; vision of sparks; itching of skin and eyes; comfortable feeling or exhaustion; restless sleep, vivid agreeable dreams. (*Wiener Zeitschr.*, Dec., 1844.)

13. SCHNELLER, one of the above, reports that he took doses increasing by 1 gr. daily for 11 d., in which therefore he took 78 grs. Up to dose of 6 grs. nothing particular was noticed save a bitter, rather disgusting taste, and increased flatus; sleep was also diminished and rather restless. Symptoms produced by doses of 7—10 grs. were, besides the foregoing, sensation of burning in tongue and soft palate, as if from pepper or from swallowing a hot liquid, which set in particularly 3 h. after taking medicine and was confined to ant. third of tongue, on which nothing abnormal was visible; appetite unaffected. During doses of 11 and 12 grs. burning diminished and was only felt on point of tongue; in middle of lower lip several vesicles appeared containing a clear fluid and soon drying into scabs. In e. slight epistaxis. Nights restless, dreams very vivid. (*Ibid*, March, 1846.)

14. A. von SZONTAGH, æt. 31, never ill since childhood, except ague 10 years ago, and whooping-cough 1 year ago. Always took the medicine about 11 a.m. either on sugar or mixed with water. Observed himself carefully for several weeks before proving.

a. From Oct. 20th took daily 3 drops of 3x. For some days pain in r. side of neck where the external carotid comes from under sterno-cleido-mastoideus muscle, as if a lymphatic gland were swollen there. The pain is distinctly felt on suddenly turning head to l., on applying strong pressure on the spot, and when the carotids beat more strongly. This pain never felt before the proving, and since then has frequently recurred during the last 10 or 11 months.—22nd and 23rd. On blowing nose in m. some drops of bright blood came from nose.—24th. Unusually sleepy in forenoon.

b. From 24th 1 drop daily of ϕ.—25th. Afternoon when sitting, slight cracking and feeling of sprain in r. wrist on moving hand.—24th and 25th. Unusually early waking in m. with inability to go to sleep again.—26th. 3 drops ϕ; nothing unusual.—28th. 5 drops ϕ. In afternoon some violent stitches in glans penis.—29th. Several times aching pain in first phalanges or 3 last fingers of l. hand. All afternoon confusion of head with slight singing in r. ear; e., aching pain in l. eye extending to l. half of forehead, followed by eructation and inclination to vomit.—30th. Slight singing all d. in r. ear, and similar but slighter headache on r. side without nausea.—31st. 10 drops ϕ. Before taking it frequent empty eructation. 2nd Nov., 15 drops ϕ. Before taking it toothache in a sound l. lower molar. After taking it frequent eructation of air, smelling of arnica. Afternoon, slight squeezing pain in lower angle of l. scapula. E., in larynx feeling of obstruction, like swelling, inclining him to cough and hawk, which sometimes brings away some thick phlegm but without relief.—4th. On waking confusion of head, in the forenoon passing into pressive r. side headache. At 11 a.m. 20 drops ϕ.

After ½ h. urgent call to urinate and evacuation of a large quantity of watery urine. Headache lasts with intermissions all the afternoon.—5th. Afternoon, suddenly a violent tearing and burning in outer border of l. foot for 1 m.—6th. 30 drops ϕ. After 1½ h. pressive squeezing pain in inner half of r. eyeball, going off gradually when walking in open air. The afternoon urine has a darker colour, acid reaction, and higher sp. gr. than usual. This and next day uncommonly frequent noises in ears, even when quite quiet.—8th. 40 drops ϕ. Twitching pain in l. side of chest for some m., recurring later.—9th. Forenoon, while walking for some m., each time he raised his l. foot, and also when moving l. ankle-joint, but not when moving knee, a creeping sensation in outer half of l. sole, as if a nerve were pinched. From forenoon till e. similar l.-sided headache as on the 29th. The l. eye seemed more prominent and sensitive to pressure.—10th. On waking and rising pressive pain in inner half of r. eyeball and corresponding part of forehead, going off towards noon. The creeping sensation in l. sole came on under the same circumstances and at the same time as yesterday, lasted longer and occurred also in afternoon sometimes. At 11 a.m. 50 drops ϕ. Towards e. in distal phalanx of r. ring finger when pressed acute pain as after a bruise for more than 1 h. Slight singing in r. ear when at rest all d. The urine passed between 2 and 6 p.m. is dark yellow, very acid, of high sp. gr., becomes opalescent when boiled, but clear on adding nitr. ac. The unboiled urine left to stand forms next day a slight sediment which continually gets thicker, and after 62 h. when it is fetid shows many crystals of triple phosphates or urates under microscope. The urine passed before and after this is normal.—11th. Wakes early. In the n. and m. passes much odourless flatus. In m. in bed when lying on back tension in region of stomach. The sensitiveness to pressure of the phalanx of the r. ring finger recurs several times in the forenoon and afternoon, but slighter and shorter, and in e. turns into tiresome aching pain.—12th. 60 drops ϕ. The urine, except in m., when it is normal, shows the same characters as on the 10th.—13th. In afternoon for 1 h. pressive squeezing pain limited to the inner half of r. eyeball. The urine passed in forenoon is sulphur yellow, turbid, very frothy, reaction neutral, and on standing a short time deposits a thick sediment. When boiled becomes still more turbid, but is cleared by nitr. ac., but becomes again turbid on the addition of ammonia. Left to stand it becomes fetid on the 3rd d. and deposits a large quantity of triple phosphates.—14th. All d. striking decrease of quantity of urine without increase of its sp. gr. In the forenoon urine the phosphates, in the afternoon urine the urates, were somewhat increased.—15th. 75 drops ϕ. E., suddenly a violent pressive tearing pain on ulnar side of distal phalanx of r. ring finger for some m. At n. when asleep breathes with open mouth (contrary to custom), whereby his mouth becomes quite dry. Urine in forenoon as on 10th, afterwards as on 13th, then normal.—16th. Afternoon and e., transient tension in l. buttock and knee. Towards e. till n. drawing and tearing in r. ring finger, especially in distal phalanx, sometimes also in little finger and along ulnar border of forearm. In the forenoon and afternoon urine the phosphates are sometimes more, sometimes less, but always increased. E., urine normal.—

17th. Urine as yesterday.—18th. 100 drops ϕ. When swallowing, great burning in throat, which goes off after ½ h. Afternoon, unusually cheerful. Towards e. pressure and tension in spinal process of last cervical and first dorsal vertebræ for a short time. Little sexual appetite. The urine passed from 3 to 6 p.m. very acid, turbid, deposits on standing a copious, brownish sediment; after standing longer there appear in it single lumps, which show under microscope many cells. After 3 d. it becomes fetid, but is still acid, the sediment more a kind of turbidity; when boiled the turbidity increases and settles at the bottom of the tube. On adding 2 drops nit. ac. it is completely dissolved with evolution of gas.—19th. Stool thinner and darker than usual. A small rapidly suppurating acne-pustule forms under the r. angle of mouth with burning pain. The urine passed in m. and after breakfast normal; that passed in forenoon and afternoon turbid.—20th. Afternoon, violent twitching pain from l. shoulder-joint to middle finger.—21st. In m. on waking, violent drawing tearing pain on ulnar side of back of r. hand for some m. This pain recurs noon, afternoon, and e.—23rd. In m. when walking, tearing pain in r. hip, ankle, and dorsum of foot. Later, when at rest, tearing jerking pain on ulnar side of back of l. hand.—24th. All day, pressive headache in r. eye, forehead, and temple.—25th. In m. in bed, drawing pain in skin of back of l. little finger. Soon afterwards pressive pain in joints of r. ring and little fingers. Afternoon, r.-sided headache. The forenoon urine turbid when passed.—26th. Early in bed, drawing in skin of l. little finger.—24th, 25th, 26th. The above-described creeping in l. sole when walking. Next d., drawing pains in limited places of the hands and r. foot, soon going off.—30th. All d. the well-known l.-sided headache; on 1st Dec. the same pain on r. side. (*N. Zeitsch. f. hom. Klinik*, vii, 9, 20.)

15. We must beware of giving to irritable stomachs powerful doses of the flowers, because they produce painful sensations. I made the experiment twice. I took in succession three glasses of a warm infusion of 10 grs.: I soon felt a painful sensation of twitching at the stomach, which extended to the throat and lasted ½ h. (RADEMACHER, *Erfahrungsheillehre*, 4th ed., I, 844.)

16. On Sept. 30th, 1873, a student in pharmacy took, at 4 p.m., 18 grammes of tincture. In 5 m. his pulse had fallen from 70 to 64; at first irregular, it soon became thready and hardly palpable. The patient experienced an intolerable præcordial anguish, it seemed to him as if the heart stopped and would not go on again; the hand applied over the heart felt its beats feeble and intermittent. The face grew pale, and there came on all of a sudden a great muscular debility so that the knees gave way; it required a strong effort of will to resist the tendency to sit down. There were fibrillary contractions in several isolated bundles of muscular fibre, especially about the jaws, and a sort of contraction in the temples. Following with the finger the spinous processes downwards, pressure caused no sensation in the cervical region; but as the finger descended to the dorsal vertebræ, it provoked a sharp and sudden uneasiness with some involuntary startings in the muscles of the nucha and back,—the head being drawn back, while the

trunk was kept erect. At the level of the last dorsal, the distress caused by pressure was so great that the patient shrank as we noticed him. He described the pain as extending like a girdle round as far as the epigastrium; and causing a stifled feeling, as if a weight were on the chest. These somewhat alarming symptoms did not continue for more than 20 m. At 4.30 there remained only great weakness, depression, pallor, feeling of emptiness in head, a little tremor of hands, some nausea, and great desire to sleep. In this state he continued till e.; at 10 p.m. pulse was still feeble and irregular, temp. 36·6.° The n. was fair; and all ended next d. in some diarrhœic stools with flatulence. (GUILLEMOT, *Étude sur les propriètés phys. et ther. de l'arnica*, Paris, 1874.)

17. 7.45 a.m., health good, pulse 65, took 20 drops 1_x in water. Soon after, itching of l. outer thigh and foot, followed by aching in same leg. 7.55, itching of face and ears, afterwards in lower leg; ache in l. scapula and acromion. 8.3, slight headache in l. parietal region; itching returns. 8.5, eructations; itching and soreness of chest walls. 8.6, aching in l. wrist and palm, with itching; slight vertigo while at rest, repeated soon after. 8.15, slight soreness of throat; eructations; shoulder lame. 8.25, pinching in splenic region; aching of right knee; vertigo. 8.30, muscles of neck lame; eructations; itching in various parts; feel stretchy. 9, gurgling in bowels; backache. 9.10, irritative cough; pain in l. temporal region. 9.15, urging to stool before usual hour; hands feel swollen and sore; occasional sneezing. 9.20, no appetite; eating causes urging to stool, with colic; scant urine attends. 9.45, face flushed and swollen; pulse 80. 10, sweat on face; yawning and stretching; much itching in various parts; slight cough occasionally. 12.45 p.m., sexual excitement without cause; feel very weary, with headache and sweat on forehead. 2, sun's heat makes me faint and nauseated (temp. 82°); pulse 94 before eating; no appetite for lunch. 4, profuse sweat; backache and languor, attended by dull headache. 4.20, urging to stool; pulse 90. 5.30, scant urine; rheumatic pains in shoulders; irritative cough; larynx very sore; usual tobacco causes nausea. 7, colic and tenesmus after light meal; legs and feet ache and are sore when walking; easy sweats; painful pimple on margin of beard (new). 10, extreme fatigue on retiring; restlessness and wakefulness until midnight. 2nd d., waked with itching as of fleabites; great debility until after eating; dull headache during a.m. Symptoms in less degree continued for three following d. (Dr. A. W. WOODWARD, *MS. Communication.*)

II. *Poisonings.*—1. A workman in full health swallowed at one draught an enormous quantity of the tincture. He was seized immediately with violent burning at the stomach, then with colic; he died 38 h. later, without presenting other noteworthy symptoms. At the autopsy there were marked traces of gastro-enteritis. (WILMS, *Berliner Centralblatt f. d. med. Wissenschaften*, Nov., 1874.)

2. A man of thirty swallowed by mistake 15 grammes of tinct. About 20 m. after he experienced violent headache, vertigo, nausea, vomiting; these lasted for 1 h., at end of which came somnolence and

at last deep sleep for 11 h. He was not perfectly restored till 7 d. later. (FERRAND, *Journ. de Chimie Méd.*, Sept., 1869.)

3. *a.* A man of lymphatic constitution and sedentary habits, very susceptible to the influence of A., had been making an opodeldoc thereof. "I went to bed," he states, "languid and exhausted; sleep was much disturbed, and I awoke six or seven times, each time from dreaming that I was dying, and that my bed was surrounded by my friends, assembled to take their last leave of me. On following d. I had intense headache, accompanied with feeling of great weight and heaviness in eyes, and sensation of oppression and drooping in eyelids, as if they could not be raised. The l. wrist was powerless for ½ h., with feeling generally that I could not use my arms. I had sensation of oppressive weight at upper part of chest, with feeling of constriction in throat. In walking, I was feeble, as if suddenly grown old. My subsequent sensations were—a want of power in both ankles, with feeling of heavy weight on each instep; in the throat as it were the sound of a subdued whistle; feeling in upper part of head as though brains were sore and tender; total want of appetite for 10 d., during which I loathed the very sight of food; constant dry cough, shaking whole frame; feeling as if bruised over whole body; nates felt hard, and there was swelling and tenderness in them; thighs of a livid colour, with blue and yellowish marks as in a "black and blue eye." There was also sense of great weight across lower part of loins, and feeling of being drawn in as by a tight cord. I had all the while a longing desire to be in the free open air of the country."

b. During first 2 or 3 d. there were ever and anon a few patches on face, and especially on forehead, disappearing and recurring, resembling the A. rash. There was also some coryza. After a few d. larynx and trachea became affected, and he had a dry, short and hacking cough. Chest then became affected; he had pains over thorax, stitches with cough, which increased pain; a great deal of hypochondriacal anxiety; there was great tightness of chest, with difficulty of respiration. (He had only had camphor and ignatia up to this time, but now took phosphorus.) After suffering with these symptoms for about a fortnight he was one night overtaken with great distress about heart, stitches there, faintness, feeble, hurried, and irregular pulse, horror of instant death. Aconite and arsenicum were given to him, and he soon after went into the country.

c. It was fully a month from the commencement of his sufferings from A. before he was delivered from the medicinal disease. The effects on mind and disposition were no less remarkable than those on the body. The patient is naturally cheerful, kindly, genial; but throughout this illness he was downcast, waspish, and peevish. He is naturally of keen sensitiveness, and this was greatly exasperated. He had more or less hypochondriacal anxiety throughout. (CHAPMAN, *Brit. Journ. of Hom.*, vii, 391.)

4. *a.* On July 1st, 1874, I was called to Mad. C—. This lady, multipara, and at the eighth month of a fresh pregnancy, had taken some soup at 7 p.m. Feeling her stomach oppressed, she intended to take a small glass of curaçao, but by mistake swallowed two tablespoonfuls of

tincture of A. She immediately felt sensation of burning in throat, which persisted; 5 m. later violent pain at pit of stomach lasting ¼ h., at same time heat and considerable perspiration compelling change of linen. There was also some nausea. After ½ h. a small stool with colic, followed by almost irresistible desire for sleep.

b. I saw patient 40 m. after accident. I found her in bed, face red, pulse quick, skin hot and perspiring, complaining of nothing at present but excessive sleepiness. The feeling of burning in the throat had gone off after the first 15 m. I gave *Ipec.* 3, every 10 m. Between 8 and 10 patient was seized with three more painful cramps in stomach, but shorter and less severe than the first. She then slept all n., and rose lively the next m., complaining of nothing but sleepiness, which passed off during d. There was no threatening of miscarriage. (IMBERT-GOURBEYRE, *L'Art Médical*, xliv, 12.)

5. In Oct., 1867, a man, æt. 69, had a fall. He got up without help, and, feeling bruised all over, took a decoction of 30 grammes of A. flowers. In a very brief space he was seized with such violent symptoms, that he believed himself attacked by cholera, then prevalent in the neighbourhood. Efforts to vomit, extreme anxiety, feeling of constriction at level of attachments of diaphragm, pallor, cold sweat, small and frequent pulse, convulsive movements of limbs alternating with tremor of whole body, were effects of this poisoning. Opium internally, and belladonna in friction along spine, gradually quieted the symptoms; it was not till after 3 d. of constant care that patient could be considered out of danger. (CAZIN, *Des plantes médicinales indigènes.*)

6. The inconsiderate use of A. may sometimes occasion somewhat grave accidents, such as M. Alibert recently saw at the Hôpital St. Louis, in the case of a man who had been gorged with decoction of A. flowers after a fall. He had obstinate vomiting, vertigo, convulsions, and the symptoms could not be subdued till after some d. (BIETT, *Dict. des. sc. méd.*, 1812. Probably same as 5.—EDS.)

7. On Aug. 6th, 1864, a middle-aged man was brought to the hospital having (on previous e.) swallowed about ℥j of tincture of A. For a short time patient had felt nothing but a little burning in the throat. He had slept during the n., but next m., 8 h. after swallowing the tincture, a violent pain had come on at pit of stomach, worse on pressure, with malaise and great weakness. Two h. later patient was found in a state of collapse. Eyes were sunken and glassy; pupils dilated and insensible to light: pulse about 100, feeble, irregular; skin cold and dry. He was given 20 drops of laudanum with some brandy; and after a second dose, aided by warm coverings and hot bottles, began to improve. Next d. he left the hospital quite recovered. ("Arnica, Case of Poisoning by Tincture of," reported by H. BERTIN, M.R.C.S., *Lancet*, vol. ii, 1864, p. 571.)

8. Mad. M—, æt. 32, took at 10 a.m. on Feb. 23rd, as an emmenagogue, two glasses of an infusion of A. flowers. In ½ h. violent vomiting came on, with great congestion of head, headache, vertigo, &c. In afternoon, frequent diarrhœa with sharp colic; also severe pains at pit of stomach, making her cry out loudly. Between 6 and 7 p.m. a bad fainting-fit occurred. I found her at 8.30 in complete

collapse, though the attendants spoke of her as already somewhat better; face was drawn; skin cool, without sweat; pulse 54, thready. She complained continually of violent pains in stomach, which hot applications did not relieve. An opiate caused pains to diminish up to midnight, when they ceased, and patient slept till m. I found her, on 23rd, still very prostrated, but without pain and more cheerful. Skin was still remarkably cool, pulse 60 and small. No more diarrhœa. On 24th was summoned to her at 6.30 a.m. Violent pains at stomach had returned; she felt congested in lungs almost as if hæmorrhage would occur. Catamenia had appeared slightly; there had been a liquid stool; pulse was small and slow. The opiate and a hot sitz-bath were ordered. Menstrual flow was not increased by latter; and in e. gastric pains became yet more severe. Pulse was scarcely to be felt, 60. Under morphia pains disappeared, and were again checked by it on a recurrence during n. and next e. In m. pulse 80, fuller; patient complained only of weakness and heaviness of head. From this time, under nux vomica, &c., she continued to improve. (SCHUMANN, *Schmidt's Jahrbucher*, 1868.)

9. Mdlle. K—, æt. 20, took some, in e. of Feb. 24th, for like purpose. She was seized, during n., with violent vomiting, watery purging with continued urging to stool (so that she could hardly quit the close-stool all the n.) and excessive pain at stomach. The continual vomiting brought up only small quantities of tasteless yellowish fluid. Face and extremities were cold; temperature of general surface normal; pulse full, retarded. The epigastrium only was sensitive to pressure. This continued in spite of ipecacuanha and opium, with cold; but vomiting and diarrhœa diminished. Pains returned yet more severely during n., and remained all next d., being aggravated by hot poultices. Morphia was freely used, and pains subsided, to return again at noon on 27th and 28th. On 1st March catamenia flowed freely, and pains gradually and finally departed, leaving weakness and loss of appetite. (MEDING, *Ibid.*, 1870.)

10. A cavalry soldier took, to prevent recurrence of a tertian fever, a wineglassful of an infusion of A. flowers every 2 h. Very soon after first glass he felt a great working in the stomach; something then seemed to get on the chest and press it; respiration was embarrassed; there followed pressure on head, swimmings, startings in limbs. He could not get up; fell, and was unable to stand. This curious state lasted ½ h.; each glass renewed it, but with less intensity. (BARBIER, *Traite de Matière Médicale*, 1837.)

11. A guardsman, troubled with palpitation and a convulsive trembling of the l. arm, was put on a decoction of A. The first glass provoked nausea in a few m.; at the same time came a general shuddering, drawings extended into limbs, even to extremities of fingers, accompanied with indescribable sensations, also by involuntary movements. The chest could scarcely expand, and the respiratory muscles were in a state of tonic contraction. (*Ibid.*)

12. Louis Méline, æt. 28, big and strong, in excellent health, carried on July 21st too heavy a load, which caused him pain in the back and oppression, without cough or spitting of blood. His mother

made him drink a very strong infusion of A. flowers. Soon after, M— felt a general agitation, which went on increasing to such a degree that on the 4th d. he had general tetanus of r. side. This state continued 3 d., when I saw him. Chloroform inhalation caused cessation of spasm, but for a time gradually decreasing in extent; and he died on April 1st. There was no autopsy. (TURCK, *Journ. des connaiss. méd.-chirurg.*, 1853.)

13. I once saw a large dose of A., taken by a young girl for a culpable object, followed by very violent abdominal pains simulating peritonitis, and complicated with a general nervous agitation. (*Ibid.*)

14. Grillot has observed, from an excessive dose of A., severe vertigo, lasting several h., and preventing the patient from standing or sitting upright. (*Ibid.*)

15. In 1870 I attended an architect who had fallen from a scaffolding and was picked up much bruised. He had been made to swallow immediately a teaspoonful of tincture of A. in *eau sucré;* and a compress of the same tincture somewhat diluted with water had been applied. Several vomitings had followed; and when I saw the patient I prescribed Arnica 6, but continued the compresses. At the end of this time the patient was seized with a constant and most fatiguing hiccup, which lasted 48 h. before yielding to nux vomica. (IMBERT-GOURBEYRE, *loc. cit.* Sachs is here quoted as acknowledging the power of A. to induce hiccup.)

16. A woman who had tertian fever for 4 months took ʒj of A. flowers in infusion. It caused dulness of sight; the next paroxysm was more severe. Two d. later she took a yet stronger infusion; and considerable dulness of sight ensued, with vertigo, trembling, anxiety, violent vomiting and diarrhœa for some h. A long deep sleep followed, from which she awoke in good condition. The fever disappeared. (BIRD, *Harless' Rhein Jahrbucher*, 1825.)

17. On July 16th, 1869, Mr. X—, æt. 66, gouty, fell violently on one knee. Though pain was severe he was able to return home, but had scarcely sat down when he felt a strong rush of blood to the bruised knee. Fearing gout would settle there he had part bathed with tinct. of A., for 7 h. consecutively. He also took the drug internally. By e., 10 h. after fall, all pain had abated; but during n. came on sleeplessness; frontal pain as if part were strongly congested; pain in temples on coughing, in nucha on standing, and in whole body when lying as if it were on pebbles; vertigo; bilious vomiting; mouth cool, with thirst, desire for strong drinks; blurred vision; pulse frequent. The next d. he complained of serious difficulty of sight; frequent diplopia; hallucinations of vision; he could not judge of distances and saw only half an object. Intelligence and memory were good; gait uncertain, motion awkward; want of appetite; thirst as before; still slight vertigo. 18th.—Does not quite know where he is, or recognise rooms he enters. Constantly sees a bright light with l. eye, which disappears on closing that eye, but reappears on closing both. These symptoms lasted 4 d. altogether; but the visual hallucinations continued some time after. (GAILLIARD, *Journ. du Disp. Hahn.*, Jan., 1870.)

18. *a.* Drs. Galoni and Manzoni, of Rome, describe (*Giorn. di Roma*, June, 1867) a vesicular eruption, with redness and swelling, resembling phlyctenoid erysipelas, as having followed the local application of A. It commences by slightly raised pink points on the place rubbed, which multiply and increase and become an infinite number of miliary vesicles resembling, though less in size, the eruption produced by croton oil. The eruption, accompanied by tumefaction, extends beyond the points touched by the application, and may be accompanied with fever in proportion to its intensity.

b. Nothing being easier than to repeat this experiment, we rubbed the posterior part of one forearm with a cloth well soaked in undiluted tincture of A. At first only a uniform redness was produced; but in 5 m., at the root of each hair, a little sharp red point appeared, which soon became a little papule, umbilicated on account of the presence of the hair-bulb. We repeated the rubbing three times in the d., but could not continue it long without causing a little blood to exude from each papule. Next d. they were mostly sunken, but some converted into small pustules; others had a small scab of dried blood. During and after the friction, on the points touched and a little beyond them, there was a tingling similar to that felt when the electric brush is passed over the damp skin. The eruption ceased with the use of the tincture; was not produced when this was much diluted; and simple alcohol of the same strength produced only a diffused redness without the eruption or sensation described. (GUILLEMOT, *op. cit.*)

19. Mrs. W—, æt. 50, sprained her ankle on May 26th, and applied a rag saturated with pure tincture of A. In 12 h. this produced "erysipelas," which was treated with various remedies and applications till the 28th, when I saw her, and found her in very great suffering. A band of inflammation about 3 inches in width nearly encircled the ankle-joint, of dusky-purple colour, upper part raised into large flattened blebs, lower part slightly suppurating; œdematous for several inches above and below; the whole most exquisitely tender, and looking most like a severe scald or burn; general disturbance very slight, save for want of sleep; one eye slightly inflamed and lids swollen; a small erysipelatous patch on r. palm. Under arsenicum and belladonna she recovered in about 5 d. (J. N. BLAKE, *Monthly Hom. Rev.*, xviii, 552.)

20. Capt. S— burned his foot slightly, and applied a weak solution of A. to it. Some days after, on mounting his horse, he rubbed off a little skin, and again applied A.,—a compress soaked in a lotion of 2 drops to ʒj of water. Some d. later an erythematous inflammation appeared about the wound with a severe infiltration of cellular tissue. The inflammation soon extended in all directions, invading hands, face, eyelids, r. ear, and r. side of neck. It then appeared that during sleep he had held his hand, wrapped in a compress of A., to the r. side of his face. The erythema increased for 3 or 4 d., causing much itching and ending in exfoliation; there came moreover little blebs on face, wrists, thighs, and lower abdomen, some of which burst. (LOWDER, *Hom. Times*, Nov., 1853.)

21. A lady, of sanguine temperament and very healthy, fell on the

ice and severely sprained her wrist. We applied cloths dipped in an A. lotion, 20 drops to the oz. These were continued, with alternate use of plain cold water bandages, for 8 or 10 d. The sprain being then very much better we did not call for 4 d. On revisiting patient, we found she had persisted with the A., using 30 to 40 drops to the oz. She had observed, for 2 d., a slight redness of the skin, attended with great itching. On examination, we found the outer side of wrist covered with a small miliary eruption. In 2 d. this had very much increased; the whole forearm and hand were red and very much swelled, the surface covered with numerous small semitransparent vesicles, with red bases; in some parts they were confluent. There was great heat and excessive irritation from the itching. The eruption, where it first appeared, died away, leaving slight desquamation of the epidermis, but the redness and swelling continued. On 8th and 9th d., swelling had spread above elbow half-way up arm, but no eruption was visible there. On 10th d., patient complained of heat and itching of face, skin became red, and over l. malar bone eruption appeared; swelling and redness soon involved l. eyelids. The course seemed to be, first heat and great itching of skin, then redness, then appearance of minute vesicles, increasing in size, and producing intolerable itching. These gradually subside, leaving slight desquamation and redness. In arm skin remained for some time covered with slight scabs and hard almost like leather. There was no fever, and headache only when face was affected. (Black, *Brit. Journ. of Hom.*, ii, 276.)

22. A man of strong constitution, æt. 70, fell and bruised his hand. He applied a fomentation of diluted tincture of A. On waking in m., he found injured hand almost black. Dr. Oschenheimer, arriving shortly after, found face, neck, breast, and back in a state of erysipelatous inflammation, l. hand dark blue, covered with vesicles of various sizes, some as large as a pigeon's egg; pulse was quick, patient depressed. After 4 d. this erythema, with some pustules which had formed in connection with it, went off, and the patient gradually became quite well. (*Œster. Med. Wochenschr.*, 1844, No. 9.)

23. A girl who was using an A. lotion for an old sprain came and showed me her knee, which, after having been wrapped in an A. compress some d., showed every sign of bruise; it was first blackish, then changed to a greenish, afterwards yellowish hue, before it recovered. Patient supposed it was "drawing the bruise out;" but as the sprain was of many weeks' standing, even that popular hypothesis would not explain the fact. (Bayes, *Applied Homœopathy*, p. 54.)

24. *a.* A gentleman, far advanced in years, was threatened with cerebral congestion, for which I prescribed A. He warned me that A. always produced erysipelas with him. In that case, I said, I will give you such a dose as cannot possibly produce such an accident; and I ordered him the 18th dil. Next d. he had decided swelling and erysipelatoid rash around mouth, affecting especially upper lip.

b. I have another patient, a lady of high rank, whose sensitiveness goes even beyond this. Her husband and sons, fond of field sports, use a small quantity of A. in their bath after an unusually tiring d., or an

A. lotion or compress for bruises or strains. But under these circumstances, if they go immediately afterwards into the room where Lady — is, she invariably has slight erysipelas of the face, with puffiness of both eyelids and great irritation of the skin. Her last attack of this kind was induced by her having thoughtlessly mixed a dose of a dilution of A. for her husband, one drop of which fell on her finger; and although she immediately washed it off, she had erysipelas in her face next d.* (IBID, *Monthly Hom. Rev.*, xix, 623.)

25. A lady took, for a strain, pilules of 3rd dil. of A. Towards e. of 2nd d. face ached, and she fancied she had caught cold. Next m. felt very poorly, took one pilule early and another at noon. Face got worse; by e. had every appearance of erysipelas. Felt very ill, and had to stay in bed for 48 h., by which time swelling had gone down. A week later, after 3 d. of 200th dil., face became hot, stiff, and a little swelled, but soon got right under aconite. (DYCE BROWN, *Ibid.*, xxii, 171.)

26. Mrs. O— fell upon her chest against a stack of wood. There was no wound, but she had considerable pain inwardly, especially when she moved or exerted herself. For this she drank an infusion of one drachm of arnica flowers. Soon afterwards she got dimness of vision, trembling and great weakness of all limbs with vertigo and stupefaction. She lay for some time quite faint. Flickering before eyes, ringing in ears. Intermittent pulse. Scraping in throat, pressure strong in stomach. Then vomiting ensued, but it was long before she felt again strong and well, and in that previously healthy woman there occurred many symptoms, from some of which she still suffers and which were certainly caused by the arnica. She suffered much from congestions, the catamenia were often profuse and attended with pain. Frequent epistaxis. Frequent spasms of stomach, pressure and boring in it; it feels contracted and then distended with flatulence, swollen until relieved by eructation. Sometimes the l. side feels as if ulcerated. Nausea and frequent vomiting. Rumbling in belly and frequent tearing pains, then urging to stool. Painful shooting and burning in anus and spasmodic contractions there. Sometimes small pimples broke out which discharged bloody matter. At same time pusillanimity, occasionally anguish, and præcordial anxiety.

Others have observed spasm of stomach, nausea, and vomiting. Others felt shocks like electricity in various parts of body, dry tongue, cough sometimes with expectoration of blood, nausea and miliary rash. (EMMERSCH, *Archiv*, xviii, 40.)

27. A lady, æt. 60, stout, delicate, nervous, bruised leg in a fall, and arn. in various dilutions of tinct., and once tinct. itself, had been rubbed into leg and retained there by bandage and oiled silk for 12 d. Bright redness then appearing on front of leg, it was discontinued; but next d. redness had increased, and "small bladders" began to form, with some itching. On 17th d. Dr. Clarke saw her. There was no constitutional disturbance and no local pain even on walking. Leg

* "I know a lady who, having 12 years before made too free use of A., could not inhale it without having erysipelatous spots on different parts of body." (GAILLIARD, *Journ. du Disp. Hahn.*, 1869, p. 79.)

was swollen and pitted on pressure. Lower portion was coloured red and black with *extravasations*. There were a few mattery points the size of lentils. Much of epidermis was raised, and clear fluid was oozing at points. Discolouration spread round calf, but was less deep and uniform than in front. There was no tenderness. Under rest, dry warmth, and arsenicum patient soon recovered. (J. H. CLARKE, M.D., *Amer. Hom.*, Oct., 1885.)

III. *Experiments on animals.*—1. *a.* In June, 1873, we injected into the rectum of a large-sized dog, at 2 p.m., two grammes of tinct. diluted with water. After 10 m. the animal became much excited; it began to frisk, to howl, then to scratch the ground with its paws, and to roll about with cries. Rectal tenesmus next came on, and contractions of the diaphragm, but neither stools nor vomitings. At 2.30 another order of phenomena manifested themselves: we saw the animal tremble on its legs, move in a hyenoid manner, and give way at its hind quarters, extending the legs as if instinctively to enlarge the base of support. Soon this posterior paresis alternated with contractions which bent the creature like a bow, and affected now one and now another of the hind legs, then both at one time. At length these contractions ceased, so that by 4 o'clock there was nothing but great lassitude, retraction of hair, dull eyes, groanings, and hiccup; the animal ended by rolling itself up and sleeping. Next d. it had regained its usual condition but for several diarrhœic stools.

b. Administered by the mouth, the same preparation, in the same dose, produced in this dog a frothy and very abundant salivation, which lasted ¾ h.; there were two vomitings, the contractions were much less marked. (GUILLEMOT, *op. cit.*)

2. VIBORG administered an infusion to horses, and found that in moderate doses it increased action of heart, flow of urine, and warmth of skin, and that these effects were accompanied and followed by full pulse, muscular tremors, and depression. In larger doses it produced similar effects in a more marked degree. When injected into their veins it occasioned flow of saliva, heat of skin, general tremulousness, with roughness of coat, laboured breathing, and full pulse. To these symptoms succeeded general depression, with drooping head and closed eyes. The animal could scarcely stand, and finally lay down quite insensible to all external irritants. Within 2 h. he perfectly recovered. Effects entirely similar, but of longer duration, were observed in a cow. (STILLÉ, *op. cit.*, sub voce.)

ARSENICUM.

[Including *Arsénicum álbum*, arsenious anhydride (acid), As_2O_3; *A. iodàtum*, arsenious iodide, AsI_3; *A. metallicum*, As; *Kali arsenicosum*, potassium arsenite, $As_2O_3K_2O$; and *Natrum arsenicum*, hydric disodic arsenate (arseniate of soda), $Na_2HAsO_4,7H_2O$.]

I. *Provings.*—1. HAHNEMANN, *Materia Medica Pura*, vol. ii of original, vol. 1 of English version. Contains 697 symptoms obtained by self and fellow observers with arsenious acid, and 382 from authors—effects of various preparations of metal.

2. IBID, *Chronic Diseases*, part v of original, vol. of translation. Contains 202 additional symptoms, from arsenious acid.

3. *a.* Dr. IMBERT-GOURBEYRE took 1 gr. of 4th trit. Jan. 26th, 27th, 29th, 30th, Feb. 1st, 2nd, 3rd, in m. fasting. Nothing observed on 26th and 27th. On 28th, slightly painful sensitiveness of both eyes; was told they looked red, as if he had been crying; found conjunctiva finely injected, redness pale and diffused. On 29th, nothing. On 30th, pressive headache in both temples the whole d. Eyes stiff, heavy, a little hot and sensitive, with some difficulty in moving lids; they look veiled and finely injected; several times they feel moist and as if filled with tears, but no actual lachrymation occurs. Weight in stomach and anorexia all d. In e. for 4—5 m. slight but well-marked pain in upper and lower r. molars; and several times then, but especially when lying down, head oppressed, and sense of burning and slight pricking in both eyes. During following d., fatigue, more in m. than e.; and even for a fortnight after ceasing proving, a decided stiffness of eyelids, which (with the other ocular symptoms) he never experienced before.

b. On 14th May took daily, for 9 d., three doses of 13th trit. On 16th, dulness of head, frontal region, all d., in e. becoming really annoying, mingled with still more painful throbbings there and in temples. Twice in 5 m. he experienced sharp pains along course of r. lower maxillary nerve, each time five or six very distinct and painful lancinations. Same headache and neuralgic shoots later, when in bed. On 17th, dulness of head all e.; for 4 d. following, continuous and marked stiffness of eyelids. On 22nd, much gum on eyelids when waking; in e. began to feel as it were sand in eyes, obliging him to rub them. For last 2 d. slight coryza. For 15 d. he continued to feel stiffness and weight in eyelids, which he had never experienced before. (*Études sur quelques symptomes de l'arsenic*, Paris, 1863.)

4. M. BONJEAN, medical student, took 4th trit. Jan. 26th, 27th, 29th, 30th, 31st, and Feb. 1st, 2nd, 3rd. On 29th and 30th, feeling of burning and smarting [probably in eyes, but it is not said where.—EDS.]. On 31st, these, with pricking, continue; slight lachrymation in m.; in e., feeling as of sand in eyes. 1st.—Same burning and pricking; eyes are stiff. On 2nd, l. infra-orbital pain with shoots and prickings, rather sharp for the moment. Great itching in both eyes, also in nose, at n. On 3rd, vomiting 1 h. after rising. Head dull all

the d., as if he had been revelling the previous n. Some itching in eyes, especially at n. Very bad headache. On 4th , bilious vomiting on rising. This d. and next, frequent need of handkerchief, with itching in nostrils. (*Ibid.*)

5. M. Souleyre took same. On Feb. 1st, in e., felt suddenly sharp pain in eyelids, with very painful pricking: eyes at same time began to water for 10 m. On 2nd, at 9 a.m., lachrymation again; same feeling of stiffness and pricking in lids. On 3rd, feeling of smarting there, as from exposure to smoke, lasting all d. On 4th, same symptoms recurred about 4 p.m., but for a few m. only. No further lachrymation, but for next 3 d. occasional and transitory pricking. (*Ibid.*)

6. M. Damour took same for 5 d. On 4th d. he had pain in mouth, commencing at l. side, then involving all the gums, which on 5th d. were swollen, bleeding, very painful to touch, dotted with white spots. On 6th d. frequent hawking. On 7th d. considerable salivation. On examining mouth, gingivo-labial juncture was highly injected; gums swollen, with narrow strips of white false membrane upon them; great formation of tartar at roots of teeth; velum palati red, especially at base; swallowing a little difficult. He suffered all that n. Next d. troubles augmented; same salivation; upper and lower gums covered everywhere with white streaks. It was some d. before mouth regained its normal state. (*Ibid.*)

7. Mlle. E—, took for 15 d. same dose m. and e. After 3 d. began to be troubled with frequent itching on dorsal surface of fingers, with appearance of acuminated papules between them. This continued till end of proving; itching often so great as to compel vigorous scratching. Similar sensations and phenomena in less degree on r. ear. For last 4 or 5 d. of proving much nasal defluxion, as in coryza. (*Ibid.*)

8. M. Lalue took same dose on e. of May 17th, and 3 times daily up to the 22nd. Throughout latter d. itching on hairy scalp, compelling scratching; also at pit of stomach. Skin of head tender to touch. Also all d. pain in teeth of l. upper jaw. On 23rd, 1 dose only; pains and itchings had ceased. On 24th, resumed his 3 daily doses; and throughout following n. had itchings on head and several parts of body, preventing sleep. On rising on 25th, a little toothache as before, which after another dose became severe, accompanied with abundant salivation, and, in spite of opiates, did not abate till n. He felt general malaise and coldness, though d. was warm; at n. had to cover himself up as in winter. The pains came always in distinct lancinations. On 26th, general malaise on rising; feverish during d. up to e. For some d. he had felt a little stiffness in eyelids. (*Ibid.*)

9. *a.* M. Tardit began on July 4th to take same dose 3 times daily. No symptoms till 6th in e., when he had sharp colic, and in n. four diarrhœic stools. On 7th, colic had disappeared, but there remained a little diarrhœa, with weariness and aching in limbs. On 9th, itching on internal surface of thighs, increasing on 10th, and affecting especially l. side of scrotum, which was redder than usual and very hot. He was much disturbed: sweating and itching were such as to compel applica-

tion of cold compresses. Next m., an eruption of minute vesicles was found at seat of irritation, which Dr. Imbert-Gourbeyre pronounced "un magnifique eczema." This ran its usual course of exudation and desiccation: after 4 or 5 d. the itching diminished greatly, and all was over at the end of a week.

b. On 24th May began to take 3 daily doses of 8th trit. On 26th, after first dose, a somewhat severe headache, increasing in intensity all d., with marked feeling of constriction at temples, as in intoxication. On 27th, pain less severe, but persistent; also sense of stiffness in thighs as after a long march. In e. this feeling invaded muscles of nape, and there was general weariness. At same time disagreeable heat in l. nasal fossa, with dryness at back of mouth. General malaise had increased and become very unpleasant; complete loss of appetite now and throughout proving; easy and copious sweating. The n. was bad; it seemed as if he were about to have a febrile rigor. In m., muscular stiffness was still more decided; it extended to arms, movement of which was painful. Headache had disappeared, but coryza and nasal obstruction were great and very annoying. On 29th, less general stiffness. This m. there is observed an eruption of small red pimples, conical, closely set, occupying whole dorsum first of l. then of r. hand; accompanied with itching increased by rubbing. On 30th eruption had extended to fingers and palmar surface of hands; itching more intense. Dr. Imbert-Gourbeyre pronounced it "une miliaire confluente." It began to fade on 31st, but neither it nor the coryza had disappeared by June 6th. The prover states that he was very subject to coryza and sorethroat; but the other symptoms were quite new to him. (*Ibid.*)

10. M. Pironon took same from June 27th. On that d., e., some stomach-ache. From time to time stiffness in eyelids; some oppression on going upstairs; general lassitude. On 28th better, but on 29th, though eyes were less stiff, he had much sense of suffocation, was obliged to go to open window to breathe; some sorethroat in e. Took no more med. During next 3 d. symptoms gradually disappeared; but on July 3rd, on rising, he was seized with pains on anterior and inner surface of thighs. (*Ibid.*)

11. *a.* M. Tardieu began on May 29th to take 4th trit. 3 times a d. On 22nd, on rising, violent headache worse on l. side, obliging him to lie down again. He had felt it slightly the previous days. On 23rd noticed deficiency of saliva; mouth dry and tongue coated; general malaise followed by vomiting, so that he took no more that d. Next d. Dr. Imbert-Gourbeyre observed on his gums the arsenical streak (see I, 6). To-day and for 3 d. subsequently, marked disgust for food. From 5th d. of proving much redness inside eyelids. He felt discomfort there, obliging him to rub frequently, rather than pain. Proving lasted 10 d.

b. Resumed proving on July 1st. On 4th considerable soreness of throat; at base of each pillar of fauces there is visible a large aphtha surrounded by redness; pharynx also is reddened. This sorethroat lasted 4—5 d. On 8th, last d. of proving, there appeared on his chest an eruption which made him "suffer horribly." It commenced there

with little red pimples obliging scratching even to blood; next d. they appeared also on arms and back. From 10th—12th, though discrete, they covered trunk and upper extremities. On n. of 13th itching was so great that scratching gave insufficient relief, and pure vinegar had to be applied. After this eruption gradually disappeared. (*Ibid.*)

12. Two others among Dr. Imbert-Gourbeyre's students proved 4th trit. One experienced no effect; the other only coryza and stiff neck. (*Ibid.*)

13. *a.* I began with the 30th dec. attenuation, putting 20 drops into Oss of water, of which mixture I took a tablespoonful 4 times a d. On 2nd d. I observed (not having an unsound spot in me) nothing but an unusual thirst, which I attributed to exertion in warm weather. But, at close of 3rd d., the sensation of heat in mouth rose to such a pitch that I was obliged to drink water the whole e., uninterruptedly, without being able in the least to allay the thirst. It disturbed my sleep at n., and was present undiminished next m., so that I discontinued proving, in spite of which it did not disappear till after 2 d. more.

b. After 8 weeks I proved 10th dec. in same manner. On 2nd d. I felt weary and averse to all bodily effort. Weariness increased; on 3rd n. there was little sleep, on 4th none. On following d. the thirst previously experienced began again, and I discontinued the experiment.

c. After 12 weeks took 3x dil. in same manner. On very 1st d. rumbling in bowels, with, on 2nd d., severe pains there, diarrhœa, and inclination to vomit; so that I again closed the proving.

In a later proving same symptoms were experienced from each dilution. (GRAUVOGL, *Textbook of Homœopathy*, § 222.)

14. Dr. SHERWEN took gr. $\frac{1}{16}$ of arsenical tartar* internally. It caused some uneasy sensations in œsophagus, not unlike heartburn, and was very powerfully diuretic. (*Mem. of Med. Soc. of London*, ii, 394.)

15. Health good; pulse 65, regular. Took at 1 p.m. 2 gr. 2_x trit. of ars. alb. dry on tongue. Immediately persistent nausea, followed by pricking pain over r. eye. 1.6, neuralgic pain from r. shoulder to fingers with numbness, burning in pharynx. 1.10, nausea returns, with cold sweat on forehead after exercise. 1.30, sneezing and watery nose; very tired without cause; dull headache. 2, thirst; drinking causes nausea; headache continued. 2.10, called to urinate more freely than usual. 3, sinking at stomach; cold feet; languor; and sleepiness. 3.15, waked with neuralgic pains in l. temple; restless and apprehensive; epigastrium tender to touch; slight dyspnœa when walking. 3.45, pinching in bowels as if diarrhœa would occur; passed urine. 4.15, heated and flushed; pulse 90, temp. 99·2°; thirst increased. 5.30, face and hands swollen and itching; rubbing causes them to itch and burn; quite restless. 6, urgent stool, copious and loose, with tenesmus; after stool exhaustion; pulse 86. 6.30, no appetite; considerable thirst; eating causes pain in stomach. During e. pain and soreness in abdomen, with despondency and languor. Heavy sleep at n.; waked with seminal emission (no dream) towards m. 2nd d. Called to stool before breakfast; no appetite for food;

* Made by "boiling solution of white arsenic with crystals of tartar, and evaporating till new product crystallizes."

felt discouraged and weak; face pale; after eating felt better. 10 a.m., copious watery stool, with relief; felt well as usual until 3 p.m., having eaten heartily at 11 (unusual). 3, feverish heat, thirst, restlessness, and headache, with occasional sneezing as from acute catarrh; pulse 96. 6.30, ravenous appetite, followed by dyspeptic uneasiness and asthmatic breathing during e. 8, copious urine; soon after loose stool with sweat and exhaustion; was wakeful and restless until 1 a.m. 3rd d. Hearty appetite; no stool all d.; headache at 11 a.m. 3 p.m. slight fever and depression of spirits until e.; offensive foot-sweat on retiring. (A. W. Woodward, M.D., *MS. Communication.*)

16. Health good, pulse 72, regular, took, at 12.15 p.m., 5 grs. ars. alb. 2x trit in ℥j water. 12.20, slight burning in stomach with eructations. 12.30, perspiration after slight exercise. 12.40, flatulence after eating (unusual); pricking pain in r. hip. 1.20, call to stool (unusual hour) without relief; dull ache in l. ulnar nerve; itching of r. knee; eructation. 1.32, prickling and tingling in various parts, especially in eyes, with lachrymation; occasional shooting pain in occiput. 1.40, repeated eructations; prickling of skin very annoying. 1.50, above symptoms continue, causing restlessness and headache; pulse 76. 2.10 p.m., feel tired and sleepy. 3 p.m., pulse 80; dull occipital headache, with confusion of mind; colicky pains in abdomen, and offensive flatus. 3.30, called to stool, loose but difficult; prickling in rectum; headache continues, aggravated in warm room. 6, good appetite; after eating, prickling of skin returns, with restlessness, oppression of chest and desire for fresh air. 6.45, stinging and itching deep in rectum; thirst. 10, pulsating pain in head of l. tibia; ache in r. clavicle; itching and prickling continues; uneasy sleep; amorous dreams with emissions without erection; called to urinate at 5 a.m. (unusual), scant and hot; on returning to bed prickling of skin returned, followed by sharp griping in bowels for a short time. Slept until 7; wakened with numbness of fourth and fifth fingers of l. hand; eyes agglutinated (very unusual). 2nd d. Urine scant; dull drawing pains in limbs, relieved by exercise; good appetite for breakfast; dull headache at intervals all d. (A. H. Webster, Student in Chicago Homœopathic College; reported by Dr. Woodward.)

17. May 25th, being in good health, I proved the arseniate of soda, taking of the 6th trit. as much as would cover the point of a penknife, 3 times a day. Until the 30th I felt nothing: on that m., headache in forehead and both temples; in e., from 7 to 11, lumbar pains extending all over back, especially between shoulders and even down arms. Next m. the pains were a little easier; but ½ h. after 1st dose they reappeared. After 2nd dose, at noon, they became so severe that I could not go out the whole e., and from sense of fatigue and malaise could take no dinner. In spite of this, before going to bed I took another dose. I had two nose-bleedings, sense of weight over eyes and pretty severe sorethroat. After lying down, I had pain in groins for ½ h. I was wakeful all the n., and in addition I, who had never known what itching was, was obliged frequently to scratch my back, stomach, and arms. Being sufficiently convinced of the power of infinitesimal doses of A., I left it off from this point; and the pains

subsided almost suddenly. (FREDET, in *Études de q. s. de l'Arsenic*, p. 78.)

18. Provings of arseniate of soda by the Hom. Mat. Med. Club of Alleghany County, Pa. A ϕ was made by dissolving 10 grs. in ℥j of distilled water, and from this dilutions were made on the decimal scale. Each prover took from 5 to 15 drops 3 times daily on an empty stomach.

J. H. BUFFUM, M.D.—*a.* While taking 30th, on 3rd d. tongue felt dry, as if burned; liquids did not remove sensation. On 4th d., eyes burned, with slight lachrymation; conjunctiva injected; vision indistinct; frequent wiping of eyes for relief. This condition continued next d., and on 6th, no medicine being taken, declined. On 5th d. frequent paroxysms of sneezing, and fluent coryza in e. On 8th d., restless tossing about for 1 h. after retiring at n., and on 10th n. sleep again disturbed; restlessness also on 9th d., with feeling as if something was impending which compelled moving about; languid feeling throughout 11th d. On 9th d., slight burning at anus, with (in e.) constant tenesmus, no stool; a soft stool on 10th followed by slight burning at anus; same, but less in degree, on 11th. On 11th d. a boil appeared at outer l. hamstring; eyes were painful in m. and vessels injected; concentrated effort needed for distinct vision. Next d. vision was poor for distance, and remained so for a considerable time. On 12th d., stomach was sour and food did not digest; digestive powers remained weak up to 15th d. (*Trans. of Penns. State Hom Soc.*, ii, 186.)

19. MILLIE J. CHAPMAN, M.D.—*a.* While taking 30th, on 2nd d. wakened at 1.30 a.m. by cutting hypogastric pain, soon followed by large stool; dull stupid feeling lasting all d., could hardly keep awake; head throbbed on going upstairs; next d. felt well, and could study easily. On 3rd d., occasional stitches in spleen. On 6th d. slight cramp in stomach at 7.30 a.m. and nausea all forenoon.

b. Under 12th, on 7th d., nausea soon after taking medicine, lasting all d.; would like to vomit, but cannot; could not sleep till late because of this discomfort. On 8th d., yellowish blotches appeared on cheeks and forehead, remaining a d. or two; p.m., fulness in forehead and throbbing at vertex. On 12th d., mind unusually equable and capable. On 13th, dull heavy feeling in forehead and vertex, with occasional sharp pains; dull aching in renal region, with profuse flow of normal urine; stitching in tibia while walking. On 15th, aching and weight in forehead; eyelids itch and burn, and feel as if smoke were in room; stitching again in tibia, and occasional little flying pains in fingers, palms, and forearms. (*Ibid.*)

20. J. S. CRAWFORD, M.D.—From 30th, on 3rd d., at 6 p.m., dull heavy feeling in head lasting 3 h. On 4th d., 3 p.m., same feeling for 5 h., after which head ached violently, all movement (even turning head) aggravating, and tying handkerchief tightly round it relieving; at 10.30 p.m., some cramp-like pains in abdomen. On 5th d., wakened at 6 a.m. by pain there, followed by a sudden copious lumpy stool; this repeated at 8 and 11; slight dulness in head. On 8th d., had to rise twice during n. to micturate, passing a large quantity of pale urine. On 9th d., pain over r. eye. On 10th d., at 3 p.m., dull heavy feeling in head, especially in vertex, increasing in severity till he went to bed, and made worse by stooping or moving head; aching took away appetite. (*Ibid.*)

21. J. C. KING, M.D.—*a.* Under 30th, on 2nd d., uncomfortable feeling in abdomen and tightness in stomach; two stools, small and firm, with much flatus; pulse 72 and full; m. urine light yellow, cloudy, precipitating after 2 h., acid, 1029; dense white granular precipitate from heat (redissolving under nitric acid), leaving urine clear and reddish brown; under microscope some phosphates visible; in e. these more abundant. On 3rd d., pain in l. knee before rising in m.; sharp pain in ilium on rising up (4 p.m.); bruised sensation externally over first joint of great toe. Abdomen swollen and painful, passage of flatus affording some relief, but

straining, pressure, or walking produces severe pain; two firm stools; inner canthi of eyes sore and red, objects blurred. On 4th d. severe pain under ensiform cartilage at noon, and at 4.40 p.m. dull pain and distension in umbilical and hypogastric regions; one small firm stool; urine of dark straw colour, mild odour, acid reaction, 1030, phosphates still abundant; slight coryza in m., which, with abdominal distension, recurred on 5th d.

b. Under 15th, on 9th d., sharp pains in r. little finger; uncomfortable fulness and pain in stomach, relieved by emission of flatus. Same in abdomen on 11th, but more severe, and flatus more abundant. On 14th d., stiffness and tenderness in upper part of sterno-mastoid. On 18th d., fulness in head all m., with occasional shooting pains over r. eye; head feels sore and he is drowsy.

c. Under ϕ, on 21st d., unpleasant feeling of general indisposition, business irksome, in e. very nervous and exhausted; head dull (in e.) with dull pain at vertex, pulse 90, hot and dry skin; nose stopped up; eyes tired and painful, with injected conjunctiva; mouth and gums tender, tongue coated whitish yellow; conscious of stomach, qualmishness alternating with pain, appetite failing; urine 1029 and depositing phosphates; aching in thighs. On 22nd, quite nervous and uneasy; skin hot, pulse 84 but temperature subnormal, head as on 21st; eyes swollen, painful, injected, and sensitive to light; thirst, poor appetite, qualmishness after meals, relieved by effervescing drink; rumbling and pain in abdomen; ineffectual desire for stool; dull dragging pain in perinæum and lower part of scrotum; rheumatic pains in limbs, especially lower, running from hip to toes, worse at rest, better on movement,—also in second joints of fingers. Very restless on this and two preceding n., frequently waking to find position shifted and coverings thrown off (normally quite otherwise). On 23rd d., eyes sore, cannot read or write without pain in them; face and neck covered with a fine miliary eruption, with here and there a pustule or large reddish pimple; legs still ache (on flexor aspect). On 24th d., 8.40 p.m., a severe pain as if sprained shot through two last toes, making him limp. On 25th d., dull aching in vertex and over eyes all d.; eyes as before; depression and utter disinclination to work; before rising severe cramp-like pain from popliteal space down gastrocnemius; pain in toes did not go off till this e.; pain also in flexor muscles of thigh on movement, as if bruised. On 26th d. ate no breakfast; and at 11.30 a.m. had darting sticking pain in great *cul-de-sac*, lasting till 12.30; pulse full, 90. For several d. aversion to accustomed cigar, and after smoking symptoms grew worse.

d. At this point prover went into the country, and there got much better. He does not say if he intermitted his proving, but we find no symptoms recorded till the 36th d., when he is still taking ϕ. On that d. he notes slight fluent coryza; on the 37th a small blister on r. side of tongue near base; and on 38th return of soreness and congestion of eyes, with lachrymation, also neuralgic pains along ulnar nerve. On 39th n. had many dreams and was restless. On 40th d., again pain from distension of lower abdomen, relieved by passing flatus; he notes that he has been urinating more copiously since taking medicine. On 41st d., pain all afternoon, pain at bifurcation of r. common carotid, felt on moving head, on pressing spot, but not on swallowing; pulse

85, full, and regular; appetite very good. On 42nd d., sick at stomach all afternoon; some distension-pain; restless, and unable to think or study; eyes as before. On 43rd d., inability to think clearly or rapidly; eyes swollen and painful; less sickness at stomach, but thirst all d., wanted water often, but little at a time; pulse 84, full, and regular; on face and neck, most on r. side, an eruption of diffused irregular patches, with numerous papular elevations, without areola, with pointed apex; some pain in l. leg, commencing soon after rising in outer aspect of knee, extending over whole lower leg to tarsus, most severe just below popliteal space, going off in e.; feeling of soreness all over legs, but worse in l. On 44th d., same feelings recurred about 3 p.m., worst in l. hip-joint. On 45th d., exceedingly nervous, it required an effort to sit still; occasional dull headache on vertex for 15 m. at a time; discharge of a thick yellowish substance from the nose; eyes as before; appetite going, getting less for 4 d. past; conscious of stomach; no relish for usual tobacco; in e. gnawing pain in lower part of rectum, as if worms were boring in it; same pains in legs. On 46th d., mental state varying; same headache; eyes as before, watering profusely on reading; stomach worse, very thirsty; worse after eating or drinking, bitter taste and yellowish coat on tongue; pulse 86; some pain in l. knee and hip; anterior muscles of thigh painful when walking and tender when touched; ulnar neuralgic pain; pains wander about; at n. restless and dreaming. On 47th d., still very nervous, cannot hold pen steadily; headache quite severe on vertex and forehead, worse above right eye; pain or sickness at stomach after meals, relieved by effervescing drinks; slept little at n., very restless. On 48th d., nervous still; eyes worse than usual, photophobia, pressure on balls produces pain after its removal. On 49th d., eyes bad up to 10 a.m.; severe but dull headache till 2.30 p.m. On 50th d., eyes painful for about 2 h. after rising, and at times through d. when using them, or when exposed to bright sunlight; both nostrils inflamed. On 51st d., nostrils quite tender when touched; eyes a little sore this m., and conjunctiva slightly reddened and jaundiced. On 53rd d., nostrils less painful, but still indurated and sore; mind clearer, and more active and cheeful; appetite improving rapidly, and becoming even excessive. On 48th d., extremely painful corns appeared on little toes, a most unusual thing, and without assignable cause; they continued without mitigation till to-day, when they are disappearing. On 58th d., appetite and disposition still better; a small boil on r. chin, and one on tuberosity of ischium. [The prover does not say when he ceased taking medicine: from internal evidence it would seem to have been between 51st and 53rd d.—Eds.]

e. "It is now 2 years since I engaged in the proving of the ars. of soda. Many of the symptoms produced in me wore off gradually; some few have persistently remained. The skin symptoms disappeared soon after the drug was discontinued. The head symptoms have occasioned no inconvenience for many months. Ever since taking the drug the respiratory mucous membrane has been unusually sensitive to the influence of cold and irritating dust or vapour. Every d. for 2 years I have hawked up more or less thick white mucus; white thick

yellow mucus has been discharged from the posterior nares. These symptoms are aggravated by the inhalation of dust, smoke, &c. There is a tendency to the formation of dry crusts in the nose; when these are removed blood follows. There is a pretty constant compressive pain at the root of the nose. After a trifling exposure to cold my throat assumes the red, puffy appearance noted at the time of the proving; no pain accompanies this condition. The action of the drug on the eyes was very marked at the time the proving was made, and the symptoms have since been so persistent that I fear the results are permanent. The eyes feel constantly weak, as if the lids must be kept closed to protect the ball. The conjunctiva seems dry and painful. When reading or writing, the eyes soon become tired and painful. A slight exposure to cold or wind produces congestion of the conjunctiva. After looking at an object a short time it becomes blurred and indistinct; the eyes are very sensitive to light. All the eye symptoms are worse in the m., become gradually less severe, and disappear towards e. The eyes do not suffer especially from artificial light. The abdominal symptoms have not been prominent for some time; the bowels, however, have not been regular since the proving; they are alternately relaxed and constipated; gas accumulates very rapidly, producing pain, which is only relieved by an action of the bowels or escape of flatus. The neuralgic pains in the lower extremities have returned at intervals, apparently without any exciting cause; they appear chiefly in the l. thigh, leg, and foot, and the nerves supplying the flexor muscles are alone affected." (*Ibid.*)

22. W. J. MARTIN.—*a.* From 30th, on 2nd d., slight colic and burning in abdomen, relieved by loose stool; nausea, almost to vomiting, after a drink of cold water. On 7th d., pinching-burning pains in abdomen; desire for stool at 10 a.m., which is unusual with him, getting his evacuation at n.; stool is relaxed, with some griping and burning at anus, but without flatulence, it relieves pain in bowels; ulceration, as from a cold, at commissure of lips, continuing 4 d.; desire to keep quiet.

b. From 15th, on 11th d., felt hot while in bed, and got up feeling tired, with skin hot and dry; epigastrium sore on pressure; discharge of unusual amount of offensive flatus; for 2 e., roughness in larynx, causing disposition to hem, with spasmodic dry cough. On 12th d. dreamed much; feeling of lassitude, wanting to sit or lie down; head dull and heavy a.m., clear p.m.; skin hot and dry; r. side of nose stopped up, and blowing of thick yellowish mucus from it; slight whitish coat on tongue; feel sore about back and abdomen; dull pain in bowels; appetite greatly increased, and digestion good; soreness in bladder, relieved by urinating; roughness in throat; constricted sensation about chest, and feels at times like taking a deep breath, but has no cough. On 13th d., tongue coated yellowish-white; bitter taste in mouth; a little soreness and some pinching in abdomen; no appetite for breakfast, but ate some, which became acid in stomach, producing very disagreeable eructations (an unprecedented occurrence); slight cough, with greyish or bluish-black expectoration. On 14th d., some cough and slate-coloured expectoration, tough and requiring much effort to disengage from larynx; stools have been mushy, and readily voided. Nothing is now noted until the 40th d., when the prover appears to be

taking the same potency. He then had dull pain in bowels, relieved by a diarrhœic stool; and after 2 h. reading, an aching pain deep in the eyeballs, aggravated by opening eyes widely, and relieved by closing and resting them for a time. On 41st d., dull aching pain in eyes aggravated by sunlight; dull umbilical pain relieved by emission of flatus; nervous twitching in l., middle, and index fingers. On 43rd d., dryness of larynx, which feels as if inflamed; great difficulty in detaching mucus, which is scanty and of dirty slate colour; after supper a dry hacking congh. On 45th d., 5 p.m., pain in l. temple, shifting to orbit; stooping aggravated; eyes very painful to pressure, and pain aggravated by light; neck feels stiff.

c. From ♃, on 49th d., having slept well, woke early with great pain in bowels and a dreadful headache; skin very hot and dry; throat rough and clogged with much mucus, difficult to dislodge and of dark slate colour; diarrhœic stool at 4 p.m.; this, forcibly expelled, with much tenesmus, relieved pain in bowels. Went to bed sick at stomach. Arose on 50th d. at 8, feeling very miserable; bathed aching head in cold water without benefit, a little food and a cup of coffee at noon relieved it, but pain returned in all its violence on walking out in hot sun; eyes very painful, look swollen and bunged up; bitter taste in mouth, with belching and sour eructations for 2 or 3 h. after eating; entire absence of thirst or appetite; feel very weak at times, mouth waters, and I think I am going to vomit, but do not, nausea passes off with flash of heat and moisture on skin, which before was very dry; at 4 p.m. a diarrhœic stool, with much flatus and slight tenesmus; pulse 88; dull pain in lumbar region; thighs are sore and joints stiff and cracking. At supper desire for pickles, which he rarely ate; taking these gave him taste for bread and butter, which he consumed freely, and by 8 p.m. felt much better, very little pain in head, and not so weak and sore. At 10 took a bath and went to bed, and was restless and could not sleep till after 3. Got up between 6 and 7, with some headache, which continued till e.; felt languid and worthless; skin hot and dry; occasional griping in abdomen; ate moderate dinner, which seemed to lie heavy on stomach. Within last 3 d. a number of hard, very red pimples, not particularly painful, on l. cheek. (*Ibid.*)

23. Z. T. Miller.—*a.* From 30th, 2nd d., transient drawing pain in r. temple; 1 h. after dose (10 drops) felt very sensible constriction and burning in lower part of larynx, most on r. side; in e. constriction and burning also in œsophagus; heaviness of eyes, especially r., lids agglutinated, pupils dilated; eyelids burn and feel as if swollen; on lower r. lid also itching as if stye would appear; rumbling in bowels as if diarrhœa would occur, and occasional hypogastric pain; colicky pains, relieved by flatus, preceded natural stool; tearing pain at anus on passing fæces; more copious urination than normal; severe soreness of chest; spasmodic cough, raising greyish phlegm in little lumps; pain over lower ribs, which are sore on pressure; resp. 16, pulse 80; rheumatic aching in r. arm, chiefly shoulder and wrist. On 3rd d., occasional shooting pains through forehead and r. temple; extremely sleepy; tongue slightly coated; pasty taste in mouth, and an ulcer there, very sore; hawking up of a greyish, viscid, tenacious mucus, with rough feeling in throat; constrictive choking feeling there still; eyes feel inflamed and swollen, with accumulation of mucus there; slight colicky pain in abdomen; was roused from sleep this m. with urgent desire to urinate, and during d. had pain in r. kidney, worse on walking; pulse 86, resp. 16; soreness under r. mamma on pressure; rheumatic pains shooting from acetabulum down to knee, lasting but a few seconds, worse on moving about. On 5th d., great con-

striction in throat; heartburn, felt below thyroid cartilage; excoriated condition of anus, very painful at stool; pleuritic pain in r. side over liver. On 7th d., shooting pain over r. ear; again some constriction in throat; oppressive shortness of breath, compelled to take long breaths frequently, with occasional pains in r. side of chest.

b. From 15th,—on 24th d., drowsy while at work, but woke often during n. On 25th d., shooting pains through frontal region; very chilly on retiring, was compelled to cover up, though his wife was perspiring by him. On 26th d., again frontal shootings; smarting in posterior nares; roughness of throat, with hawking of tenacious mucus; urine a little darker than usual. On 27th d., feeling of pressure over each side of occiput, as from a photographer's head-rest; numbness of forehead in e.; wavering floating sensation on turning head quickly; scraping and raw tickling sensation in mouth; stiffness of eyeballs and lids; considerable pain in chest between nipples, with indescribably hollow feeling there, much aggravated by inhaling carburetted hydrogen gas; shooting pain under r. mamma; rheumatic pain in r. forefinger.

c. From same potency, presumably after an interval,—on 36th d., moderate feeling of constriction below thyroid cartilage, as if pressed between thumb and forefinger; urine a little dark, passed in greater quantity than usual and with urgent desire; pulse 80, resp. 20; sore bruised feeling under and to l. of sternum, at junction of upper and middle third of bone, felt on throwing shoulders up and back, at times extending to inferior angle of scapula and to shoulder-joint; intercostals of l. side, between 6th, 7th, and 8th ribs, are sore to touch; for last 5 d. a weary aching on raising l. arm; shoulder-joint cracks on moving it; aching in whole arm, especially down median nerve to finger ends, worse from pressure or motion; flexor muscles readily become stiff; dull rheumatic pain from r. knee to ankle with cracking of knee-joint on motion; metatarso-phalangeal bone of r. index-finger sore on pressure, so much so as to make it painful to hold a pencil for any time. On 37th d., sharp shooting pain between 6th and 7th ribs, about junction of ribs with cartilages, lasting but a few seconds, recurring after ½ h. On 38th d. woke with eyes somewhat swollen and agglutinated; eyeballs feel large when lids are closed; pulse 80, resp. 17; seat of yesterday's chest-pain sore to pressure; shooting pains over liver frequent, but not severe; during m. aching at insertion of flexors of l. forearm while riding. On 39th d., pain at root of nose, which was stopped up on r. side and dry; eyes heavy, and balls sore and smarting, supra-orbital region very much swollen, and pupils a little dilated; burning when urine begins to flow; in afternoon boring headache in temples, from without inwards, chiefly on r. side, but extending to l., with nausea; head feels hot, but on placing hand on forehead it seems cold; headache is aggravated by heat, pressure, and tobacco-smoke; throbbing of temporal artery; pulse 84, resp. 16; pain in lower abdomen, as if from a colic coming on; shooting pain from short ribs down across l. hypochondriac region; supped principally on fruit; during n. some nausea, followed by chills in back, which made him shudder. On 40th d., severe pain in r. temple on rising in m. (formerly subject to it but free from it for a long time), less after breakfast; orbital region much swollen and eyes very watery for some

time after waking; at 11 a.m. copious papescent stool—sharp shooting in l. hypochondrium just before it; a second stool (unusual) later in d.; no appetite for anything but juicy food and fruits; pulse 96, resp. 17; all e. dull heavy head, with slight nausea; unusually prolonged sleep at n. On 41st d., 8 a.m., dull headache in r. temple; eyes puffy and dim, flickering before them when closed; slight nausea. (*Ibid.*)

24. R. RAMAGE, M.D.—Refers no symptoms to attenuations, but took two courses of ϕ. *a*. On 3rd. d., fine red rash on face and neck, most on r.; eyes felt swollen in m., conjunctival vessels congested; dull pain in umbilical and hypogastric regions, with frequent discharges of flatus. On 4th, orbital region and eyes much swollen and agglutinated on waking, with sensitiveness to light, conjunctiva slightly congested; pain along course of crural nerve, as if bruised, worse when beginning to move limb, better from continued movement; pain also in l. iliac and inguinal region, hip, and knee, with occasional twinges in r. knee; in e. feeling of heat and fulness in whole head; slept soundly. On 5th d., eyes same, but more congested; listless, languid, wants to sit still, no disposition to attend to business, cannot think clearly; face feels hot, with dull feeling in forehead; crural pain gone, but now pain and soreness along both sciatics, felt most in walking; feels tired all over; in e. violent frontal headache, with much prostration; every time he awoke at n. head ached. On 6th d., rash continues; feels nervous, and cannot concentrate mind; headache better, but head feels dull as if he had taken cold; less sciatic pain, but weak feeling about sacrum; more disposed to urinate than was his habit. On 7th d., stopping up of nose, with watery discharge; pains in legs not felt. On 8th d., rash still present; cannot remain long in one position, must move about; feels nervous and much prostrated; head dull, with vacant feeling in it; cannot concentrate mind on anything; eyes look as before; pains and flatulence as on 3rd d.; dry cough, with feeling of tightness and oppression on upper two thirds of chest; n. restless and wakeful, depression on waking. On 9th d., head somewhat better; face less congested; dull and languid all d., easily fatigued when walking; still coryza; congestion of eyes abating; cough and oppression at chest continue; pain in both knees and in l. hip when walking; restless n., sleep full of dreams with frequent waking. On 10th d., head much clearer; still coryza; eyes but slightly congested; cough and chest as yesterday; pain in l. hip and inner thigh. On 11th d., head dull and heavy again; nose stopped up; feeling in chest as if smoke had been inhaled, causing cough. On 12th, nose still stuffy, some discharge from it. On 14th d., loss of smell; still easily fatigued when walking. The med. had now been left off for some d., but the appetite had not been so good since, and some tenderness was felt at epigastric region. The sensation at the chest was so trying that he had had to take several doses of pulsatilla, which now somewhat relieved.*

b. In the re-proving there was taken (at what intervals is not

* Under "stool" prover refers to this first proving the following, without specifying the day or days on which it was noted:—"All bowel symptoms worse during the day. Frequent stools of a muco-purulent character, with much tenesmus and flatulence during their passage, and before them dull pain in umbilical region."

stated) ℥j of a solution of 8 grs. to the oz. On 2nd d., there was dull, not severe, frontal headache. On 3rd d. could not think readily till e., had headache till 4 p.m.; troubled sleep, unusual dreams of quarrelling and difficulty. On 5th d., head clear; thin whitish fur over middle of tongue from tip to base, leaving a small, well-defined space on each side clear and of natural colour; nose dry; quite a tender feeling in epigastric region, always present, but worse on pressing part. On 6th, still epigastric soreness on pressure; has coughed a little to-day, and voice is somewhat husky; an oppressed or stuffed sensation from larynx to bottom of sternum all d., and pain for greater part of it throughout upper part of l. lung, but no soreness on pressing there; he can take a deep breath, but the air causes a disagreeable feeling behind sternum, and deep inspirations are followed by a cough. On 7th d., breathing was clear; tongue a little corrugated, and posterior part covered with a whitish-yellow coating, becoming lighter nearer tip; slight swelling of orbital region and moderate congestion of vessels of white, but no disagreeable sensation; epigastric tenderness continues as on 4th d.; appetite good; pulse 86, a little variable in volume, but regular in beat. On 8th d., tongue slightly furred; eyelids swollen, especially lower; slight photophobia; lachrymation in open air. On 9th d., severe frontal and temporal headache, coming on between 2 and 3, and lasting till 5 p.m.; while pain lasted aching part was sore to touch, and he felt listless and absent-minded. On 10th d., eyes as before. On 11th d., throat somewhat red, colour deepest "within the fauces," diminishing from soft palate upwards, no soreness felt on swallowing; on waking in m. whole orbital region swollen and eyes congested; stuffed sensation all d. through chest generally, more markedly felt behind the sternum, and from larynx to epigastrium; more or less continuous, dry, hacking cough came on about 4 p.m.; voice somewhat husky; nasal mucous membrane swollen, and passages somewhat obstructed; some exudation from nostrils. On 12th d., on waking, entire face swollen, especially orbital region; dull frontal headache; slight coryza; throat purplish red, and pharynx dry; no soreness, but disposition to hawk frequently, bringing up tenacious starchy-looking mucus; eyes felt uncomfortable; dry, hacking cough all d., but chest feels more free; through n. was at times chilly for a few m., then hot—heat dry and burning, involving entire frame, and lasting three or four times the length of the chilliness, no perspiration or thirst. On 13th d., from getting out of bed in m. throughout d. at times dull shifting pains through abdomen; copious loose stool at 9 a.m. with much flatulence; moderate discharge of tenacious whitish mucus from nose; still disposition to hawk and clear throat; pharynx and pillars of fauces are red, and their structures are angry looking, but not sore on swallowing; tongue white, save at edges and tip; quite an increased flow of urine during d., which seems to have relieved chest; cough is less troublesome, but voice husky. Nothing further is noted until 24th d., when, though he had ceased to take drug, dull frontal headache is described as coming on for 5 or 6 d. about 3, lasting till 9 or 10 p.m.; he could not concentrate mind, or recall names, and was indisposed to study or to speak to anyone while headaches lasted; still a little coryza; eyes slightly gummed in m. and

feeling as of thickening of structures within lids, r. eye worst; eyes smart and feel badly on reading for a time, vessels still somewhat congested; bloating of face gone; appetite not nearly so good as when taking drug; bowels regular; urine natural. On 28th d., headache mentioned on 24th had ceased for some d., but in its place a feeling of prostration and sinking in epigastrium, without pain, supervened at about same time, lasting an h. or so, with yawning and dull feeling in forehead. Stomach is disposed to ache every time cold water is taken. He remained for some little time more impressionable to cold than formerly.

c. "Two years have elapsed since I entered upon the proving of the ars. of soda. Many of the symptoms noticed while taking the drug have disappeared. Those which remain, or which have reappeared from time to time, will be mentioned under their appropriate headings:

"*Skin.*—The rash noticed during the proving has made its appearance on the face and neck at irregular intervals since, but has not remained long at any one time. A squamous eruption (not noticed either before or while taking the drug) has appeared on the chest along the sternum. The scales are quite thin, whitish, and when removed leave the skin slightly reddened; when the scales are allowed to remain, the parts covered by them become itchy, especially so when warm from exercise.

"*Mind and disposition.*—Am more restless than was formerly my habit; so much so as to be noticed by others. Not so cheerful as before proving. At times feel irritable, then have not the usual desire for study, although the mind seems clear and the memory as usual.

"*Head.*—The headache experienced while taking the drug passed off soon after I ceased taking it, and has not at any time since reappeared.

"*Nose.*—Since the taking of the drug have been troubled with nasal catarrh. The nose feels stopped up all the time, but it is worse at n. and in the m. During the d. there is very little discharge from the nose, but a feeling as though the mucous membrane was swollen. In the m. the nose feels stopped up, and pieces of hardened bluish-coloured mucus are blown from it, after which the mucous membrane feels sore and raw. I take cold much easier than I used to.

"*Eyes.*—My eyes became sound as usual about 7 or 8 months after I ceased taking the drug, and have remained strong and well since.

"*Stomach.*—The tenderness of the epigastrium noticed during the proving remained in a moderate degree. Have had frequent attacks of indigestion, lasting several d. at each time. At such times the stomach feels sore, and anything warm or heating causes a sensation of burning, and can be sensibly felt immediately on entering the stomach. Previous to engaging in the proving I had not experienced any tenderness or pain in that region.

"*Extremities.*—The neuralgic pains produced by the drug reappeared frequently during the year. At times they were quite severe, and would remain for several d. at each return. Recently they have not given me any trouble." (*Ibid.*)

25. O. R. SHANNON, M.D., made two provings in usual way of

solution of gr. x to ʒj, taking it on first occasion for 6 d., on second for 7 d., with 20 d. between.

a. No symptoms are noted till 7th d., when there was slight pain through bowels, with some urging to stool; three soft dark-coloured stools, followed by slight burning at anus. On 8th d., eyes felt swollen; face a little flushed; again three thin dark-coloured stools, with more marked burning, preceded by pain which after them is relieved. On 9th d., the same. On 10th d., tongue large, moist, and fissured; pulse 76. On 11th d., eyes swollen about orbits; pulse 80 and intermittent (unusual with him); aching in all limbs. On 12th, tongue flabby and fissured; pains through bowels; appetite poor; stools lumpy. On 13th, one stool only, almost black. On 14th, was wakened at 3 a.m. by sharp cutting pains in abdomen, relieved by passing off flatus, but recurring during d.; got up feeling tired and as if bruised in body and limbs; eyes still much swollen; tongue as before; do not wish to think, read, or exercise; pain and irresistible desire for stool, evacuation large and soft, later a small, thin, dark and slimy stool; pulse 88; an aching low down in back, across sacrum (more or less constant during proving); sleep full of dreams of murder and fighting. On 15th, slight pains in abdomen, making him sick, with urging to stool; empty retching; could eat no breakfast, but after 2 or 3 h. sleep felt better, and had some appetite for supper; pulse 90.

b. On 3rd d. after recommencing drug, slight pain in bowels; on 5th d., felt dull and stupid; eyes swollen and conjunctiva congested, eyeballs sore when closing lids, and when pressing ball. On 6th d., eyes same, l. especially red and sore, lids scratch on rolling ball, light aggravates soreness. On 7th d., eyes same; dull and stupid. On 11th d., eyes still painfully affected, and he continues to feel badly; though pulse and functions generally are normal.

c. Took at intervals during 19 d. ʒj of solution of gr. viij to the oz. On 4th d., a light whitish fur on tongue; slight orbital œdema and sclerotic congestion; one light painless stool at 7.30 a.m.; pulse at noon 65—69, and irregular, 5—7 intermissions in m. On 3rd d., eyes sticky and sore; on 8th d., eyes red and irritable; tongue deep red, considerably corrugated and somewhat furred; considerable thirst last n. On 9th d., complexion a little red or purplish; tongue not so red, papillæ at back elevated; eyes same; loose motion at 8 a.m. On 10th, heavy and sleepy, cannot study, disposed to remain sitting; two stools, first part of each natural, latter part relaxed and acrid; disposition twice again to go to stool, passing away when flatus is allowed to escape; escape of gas nearly always preceded by more or less pain through small intestines; respiratory sounds not clear; disposition last n. and to-day to hack and cough; pulse 76, soft and rather regular. On 11th d., on waking, tongue moderately furred, but no very unpleasant taste in mouth; brief crampy pains through small intestines several times in d., also previous to each of two somewhat abnormal stools; appetite not good, could eat, but had no relish for the food; in forenoon especially, hacking cough without expectoration. On 12th d., nostrils dry and somewhat swollen within; from posterior nares

much semisolid whitish mucus, obliging hawking; dull and listless all d.; slight dull temporal and supra-orbital aching; eyes feel puffy, palpebral conjunctiva quite red and thickened; tenderness on pressure all over abdomen; at 6 a.m., a large liquid stool, preceded by pain, and a little acrid; several times sharp stitching pain in sides of chest, between 4th and 7th ribs; continual irritation behind sternum, about midway; percussion over chest causes pain, but gives clear resonance, while respiratory sounds over lower half are quite dull; pulse 96, at times slender, at times full and very irregular; slight tenderness in renal region, urinated but twice in last 24 h. On 13th, felt moderately well, except dull and stupid; did not sleep well, dreamed of getting into a row and having difficulty. On 14th, listless and dull, and could not study, but was bright enough while walking in open air; disposed while indoors to get near fire and remain there; dull temporo-orbital pain, and confusion in head generally; eyes more puffy and congested, and balls sore to touch or on pressure; at 1 p.m., l. pupil much larger than other, this dilatation passing off while walking; tongue on waking somewhat furred at back and papillæ there elevated; anterior part fissured; nasal cavities were stopped up, and from l. nostril a watery, non-irritating discharge continued till 10 a.m.; great thirst; no appetite till supper-time; nausea, aggravated by eating ever so little, causing him almost to vomit, a tasteless fluid rising into the mouth,—relieved by rising up from sitting or recumbency; bowels moved once, but frequent desire to act subsequently, ending as on 10th; stool small and pasty, preceded by griping and followed by burning; dry cough all d., causing him to gag; pulse 95—96; dull aching across sacrum and down outer thighs as far as knees all d., and for a short time in ant. and inner part of l. thigh. On 15th, aching the same till 10 a.m., better while walking about all d., but returning on sitting down in e.; twice a sudden and transient pain from below l. trochanter to spermatic cord; eyes slightly agglutinated on waking, but orbital region less swollen; same sickish feeling as yesterday, and no appetite till supper-time; epigastrium tender on pressure; two stools as yesterday; same, but slighter, disposition to cough and gag; pulse 100, slender and intermittent, in m., 80 in afternoon; nose as yesterday. On 16th, mind unfit for study, disposed to be irritable; head feels dull; nose discharging; dull aching across orbits; much hawking; one stool as before; cough as yesterday; pulse 80 and irregular; pain under trochanter felt occasionally as a moderate aching. On 17th, dulness and moderate supra-orbital aching; nose same; sensation of dryness all d. in fauces and pharynx, parts look glassy; in e. found pupil of l. eye much enlarged; one stool as before; dry cough; pulse 75 and slightly irregular. On 18th, dull supra-orbital headache; profuse nasal discharge of watery mucus; clammy taste in mouth; whitish fur on tongue in m., most dense at base; hawking, worse in open air; eyes feel sticky, vessels turgid, orbital region somewhat swollen; cough, worse in forenoon. On 19th, had slept uneasily, dreamed, and shifted restlessly; thirsty on getting out of bed; throat dry, and when so cough most troublesome; tonsils, uvula, and soft palate red, thickened, and sore-looking, but no special pain on swallowing; was irritable and

dull, wanting to sit or lie and not be disturbed; tongue cracked, red, and uneven, and slightly furrowed; eyes rather more sore, and light pains them; feeling of abdominal repletion, obliging loosing of clothes; a transient fine shooting once from l. groin through navel to r. ribs; dry cough, and feeling of dryness down trachea and into bronchi; chest still sore on percussion (r. side); a single stitch through that side; pulse 76 and a little irregular. On 20th (med. being now finished), mind much clearer; head feels better; still nasal catarrh, stuffy in m., fluent through d.; soreness of eyes nearly gone, and turgor of vessels diminished on ball, not on lids; on waking throat dry, and much stiff tenacious mucus lodged in upper pharynx, endeavour to dislodge which caused gagging; slight fulness in abdomen and a little tenderness in epigastrium (for some time past sudden pressure on abdomen has made pain go through it) continuing till flatus had passed off by bowels; appetite good; cough as yesterday; soreness on walking or stooping, first felt on getting out of bed in m., very severe on pressure, at each sacro-iliac symphysis, worse on l. side; when walking for some time pain was easier; pain and soreness on inner side of l. thigh from groin to popliteal space, felt also to slight degree in other thigh. On 21st, throat is purple red, rough, pitted in places, and studded with little points of mucus. On 22nd, woke in m. with dry fauces and pharynx; uvula swollen, no soreness; he gags when mucus (which is tenacious and difficult to dislodge) is hawked from behind soft palate; during d. throat dry and sore, empty deglutition painful; tonsils, fauces and pharynx are purplish red and œdematous, and in places covered with a tough whitish viscid mucus; eyes still slightly congested; still some epigastric tenderness, and some starts of pain on deep pressure upon abdomen; on waking nostrils stuffed, began discharging freely about 9 a.m.; commenced coughing on waking, and continued it in heat of room, respiratory sounds becoming natural, and no pain or soreness in chest; pulse 80, and irregular both in volume and beat; superficial veins full; but little soreness now felt along thigh. On 23rd, nose entirely stopped up on waking; fauces and pharynx dry, and a quantity of tough yellowish mucus at back of throat and nostrils; through d. free discharge of yellowish mucus from both nasal cavities; sense of smell has been defective since nose began to show symptoms; throat painful on empty deglutition all d., but no soreness on swallowing food or drink; cough dry, but not so continuous. On 24th, on waking, throat much better; still frequent hawking and clearing of throat; œdema less; nose still discharging as yesterday; mind clear and natural, but quite a severe aching through temples and forehead from waking till 1 p.m.; eyes a little red but not swollen, and sight much clearer; epigastric and umbilical tenderness on deep pressure, which still starts gas; fulness in stomach and bowels after moderate eating. Nothing now mentioned till 36th d., when there had been no headache for 10 d.; at times a watery mucous discharge from nose; still disposition to clear throat of tenacious mucus; dryness only occasionally felt, and soreness much less, but fauces and uvula œdematous and redder than usual; eyes a little red and watery, but feel almost well; reading by artificial light cannot long be endured without discomfort;

appetite good; bowels regular; cough a little loose, but otherwise about as for last 4 weeks; once or twice a day a little starch-like substance is dislodged seemingly from 1st r. bronchus at a spot where there is slight soreness on pressure; pulse 96, slender, and a little irregular.

d. "Nearly two years have elapsed since the proving of the arseniate of soda. The symptoms caused by the drug disappeared entirely soon after I ceased taking it, except those of the nose, fauces, and chest. These have been quite persistent since the proving, and are as follows: —The nasal mucous membrane is dry, the nasal mucus becomes tough, hard, and sometimes when dislodged causes bleeding. From the posterior nares there is a dropping of mucus, which at times collects in a tough and very tenacious mass, causing considerable hemming and hawking to dislodge it. The fauces feel dry on inspiration and on deglutition. The dryness worse in the m., and always after a cold. In the r. side of the chest, beneath the cartilages of the fourth and fifth ribs, where irritation, pain, and soreness occurred when proving the medicine, there is an uneasiness, which on any physical exertion occasions a teasing sensation, producing a dry hacking cough and slight soreness, but never any acute pain. These symptoms are aggravated by deep inspirations, by dust, and a close atmosphere." (*Ibid.*)

26. J. G. Thompson, M.D., made two provings, one of the 10 grs. to ℥j solution, which he took in the usual manner for about a week; the other (with 18 d. between) of the 8 grs. to the oz. solution, of which he consumed ℥j in about 3 weeks.

a. On 2nd d. found an effort required for attending to accustomed duties; tries to write, but has to form each word laboriously; dull frontal aching on waking, during d. very severe frontal pain, every motion jars brain; conjunctivæ congested (on waking), eyes sore on pressure; at 5 p.m., feeling of nausea, vomited large quantity of sour water; felt better while lying quiet; odour of food then pleasant to him, but on attempting to eat first bite caused same vomiting; pulse 98; had to lie on face to get to sleep, but slept well through n. On 3rd d., head dull and heavy, with frontal aching; conjunctivæ of uniform redness; soreness and aching of eyes on moving them; face flushed and hot; through m. occasional pains in umbilical region, with frequent passages of flatus; feeling of fulness and oppression at chest; slept moderately well. On 4th d., feeling of nervousness all through body; head heavy; eyes congested; occasional pains through bowels, with emissions of flatus; lungs feel oppressed as if by a heavy weight; lower extremities feel heavy. On 5th d., stupid all d.; dull headache, frontal, and at root of nose; eyes as before; face feels puffed up and hot, heavy aching pain in ethmoid bone; heavy, oppressed feeling in chest, requiring quite an effort to draw a full deep breath. On 6th, confused feeling in head; nose stopped up, must keep mouth wide open to breathe during n.; after rising, clear watery coryza, very profuse, with constant aching at root of nose; eyes very much congested; oppression in chest, with slight dry cough; on commencing to move pain and soreness in r. knee; slept poorly, would start up and be wide awake and much frightened. On 7th, gloomy, wants to sit quiet;

head heavy ; coryza very profuse and watery, and aching severe ; eyes same, looking at anything makes them ache ; malar bones feel as if swollen ; muscles of mastication feel stiff, and pain on motion ; occasional pains through abdomen ; dry cough ; lungs feel as if filled with smoke ; extensor muscles of thigh feel sore ; slept better. On 8th, dull frontal headache ; still pain at nose, discharge becoming whitish and thick ; oppression at chest ; cough looser, but no expectoration. On 9th, dulness only in head (frontal) and nose ; discharge from latter tough and yellowish ; chest and cough same.

b. On 3rd d., very thirsty throughout ; and about 10 m. after taking medicine feeling of distress, commencing in epigastrium, and in a few m. extending throughout abdomen, worse on movement. On 4th d., dull and indisposed to study, cannot be interested ; more dull of hearing than usual ; still thirsty ; tongue coated with thin yellowish-white fur ; eyes a little irritable and congested, sclerotic slightly yellowish, and orbital region œdematous ; some reddish irregularly shaped spots over nose, which had remained from former proving, are now irritable and tender ; frequent copious discharge of clear watery urine. On 5th d., could not concentrate mind readily ; heavy, disagreeably full feeling in orbital region reaching to temple ; thirst a little less ; tongue as yesterday ; eyes sorer, vessels fuller, and they burn as if long irritated by wood smoke ; r. side of nose and over bridge a little red, spots not so sore but harder ; urine rather less ; transient pains (3 on r. side, 2 on l.) in front of chest, below 7th rib, about 2 inches from sternum. On 6th d., mind as yesterday ; less thirst ; smarting and œdema of eyes same ; no stool for 2 d. ; urine normal in quantity and quality ; chest pain quite frequent (about 20 times). On 7th d., moderately severe aching in forehead and temples, worst in and above orbits ; face looks hot and feels flushed ; œdema in infra-orbital region, lachrymation, and tendency to close eyes, besides the congestion and smarting ; a bright-red rash, blotchy and irregular in shape, not elevated, appeared in m. over forehead, and in 1 h. extended over face ; natural stool ; chest-pains less sharp and frequent, but oppression and soreness on inspiration at their site. On 8th, tongue nearly natural ; eyes heavy, smarting, sore on movement, with orbital aching ; tenderness of epigastrium ; no stool ; chest as yesterday ; pulse a little irregular, variable in volume, 72 (normally 80—85). On 9th, confusion and want of concentrating power worse ; eyes same in appearance, but close and ache more ; frequent borborygmus with pain ; chest same, with frequent sighing and yawning ; pulse still more irregular ; on lying down at n. (also previous n.) on closing eyes visions of small black animals appeared to pass before him, arousing him from sleep ; and while sleeping black objects were dreamed of. On 10th, eyes feel same, conjunctiva looks more congested and swollen ; soreness still felt on inspiration, and respiratory sounds not clear ; pulse 76 and but slightly irregular. On 11th, still depressed ; heaviness in head, but less pain ; thickening of nasal mucous membrane ; can inhale, but exhales with difficulty ; much yellowish consistent mucus from posterior nares ; feeling as if some burning or acrid substance had been taken into stomach ; two m. stools, rather looser than usual ; more or less constant feeling during

m. of irritation throughout bronchi, with pain and soreness on r. side, and slight dry cough; tenderness on pressure in supra-clavicular region; pain between scapulæ, quite severe, causing bending forwards for relief, felt at every inspiration; after 1 h. it passed below point of scapula to between 9th and 10th ribs, where there is soreness on deep inspiration; sleep troubled with indefinite dreams. On 12th, mind dull and desultory; less frontal headache than previously; much sneezing and watery coryza; eyes very sore, red, and weeping in open air; epigastrium has been tender since 8th d.; chest till 3 p.m. as yesterday, respiratory sounds not clear at base of r. lung; pulse 76, slender, but regular; dull pain through r. calf and popliteal space for ½ h. while lying, passing off on walking. On 13th, again watery discharge from anterior, thick from posterior, nares; eyes looking better; no stool for 2 d.; lungs free from pain or soreness, can breathe deeply without inconvenience; pain again in r. popliteal space, followed by frequent cramp in plantar surface of r. foot. On 14th, mind as before; fluent coryza with sneezing all d.; tongue rather whitish and downy with metallic taste after a drink of water; eyes bad again, and orbital region much swollen; chest also oppressed and irritated as before; pulse 76, full, and regular. On 15th, mind same; awoke with somewhat severe pain from temple to temple across orbits, continuing all d.; sneezing on every exposure to cold air, nose discharging or stuffed; hawking as before; eyes as yesterday, feeling as of something granular on lids when moving balls; natural stool; chest sorer than yesterday, and more (dry) cough; some sharp l. infra-mammary pains; respiratory sounds at both bases indistinct; pulse as yesterday; heart-sounds heard distinctly all over chest; weary feeling in thighs this afternoon. On 16th, had slept soundly, but was restless and tossed about without being aware of it (on inquiry found that this has been so since pathogenetic effects began); when roused up at any time since taking drug, he wakes nervously as if in affright, which is not usual with him; no headache; tongue still slightly furred, as it has been for several d.; eyes same; no stool; chest and cough same; in afternoon aching travelling down anterior lower extremity, increasing to a restless uneasiness, lasting till bedtime. On 17th, awoke with very severe aching across brow above orbits, with considerable vertigo on moving about, and sensation of lightness or largeness of head while sitting, continuing severe till 3 p.m., from which h. aching gradually lessened to bedtime; no coryza for 2 d., anterior nares clear, but post. obstructed; hawking more frequent, and mucus more yellow and thick; eyes same; one small stool; cough more severe, but still dry; entire chest feels clogged and full, and sore on any deep inspiration; auscultation gives same results; pulse 76, variable in volume; heart-sounds unusually loud and distinct; about mid-afternoon pain again in r. popliteal space for about 1 h.; found it difficult to get to sleep, from annoying nervousness; when attempts were made to rouse him in n. rose up in bed excitedly and lay down again unconsciously. On 18th, supra-orbital headache, constant though slight; hawking same; on looking into throat tonsils, uvula, soft palate and pharynx are thickened, irregular on surface, swollen, purplish red, with abundance of yellowish-

grey mucus; no soreness on swallowing, moderately heavy whitish coat over greater surface of tongue on waking; considerable pain through abdomen all m., with relaxation of bowels, attacks lessening towards 1 p.m., stools rather dark and very flatulent; from 2 p.m. every ½ h. dull cutting pain for 5 m. along Poupart's ligament on either side, on subsidence of which there is for 10 m. sickening sensation in l. testicle, as after a blow,—testicle during this time extremely sensitive to touch; chest and cough as yesterday, but pain, then on r. side, is now on l.; pulse 86, slender, and irregular; frequently-recurring sharp stitches along palmar surface of 4th metacarpal bone, in one or other hand at time; inguinal pain woke him 3 times in n. On 19th, still unable to bring himself to study; inguinal pain every h. only to-day (till 4 p.m.), but quite as severe; soreness from lower cervical vertebræ to angles of both scapulæ, felt first on getting out of bed in m., becomes stitching pain on deep inspiration, which lasts a long time. On 20th, throat less dark and rough to look at, but feels same; hawking as frequent; eyes same, lower lids distinctly granular in appearance; cough loose at n., but in d. tight and more painful; all d. sore through whole chest, and at times recurrence of the l. pleurodynia; pulse 78, at times slender, at times full, and readily fluctuating on movement of body. On 21st, head as on 18th; eyes same; return of pain of 18th in groin, but less severe; chest as yesterday. On 22nd, three small loose stools before 9 a.m. On 23rd, frontal headache rather more severe; throat painful on empty swallowing only; eyes sore and swollen on waking; swelling going off in an h.; chest same. After a good n. woke with severe supra-orbital and temporal pain, continuing very severe till 4—5 p.m., when it passed into orbit and ball of eye posteriorly; it was here very severe, obliging him to lie down; there was much photophobia, whole orbital region very much swollen, and vessels of ball and lids both largely congested; pain began to diminish about 7, and by bedtime had almost ceased; chest same. On 25th, eyeballs sore on pressure, and aching on looking at objects; epigastric tenderness again to-day; anterior coryza has ceased for some d. past, but much mucus as before is still hawked in m. from posterior nares; there is dry, stiff feeling in pharynx on waking; whole throat still looks thickened, pale red, and spotted with mucus; no stool for 2 d.; some turns of dry cough; pulse 82, full and regular. Nothing now noted till 29th d., when throat remained the same; eyes were sore, smarted and watered on going into open air, orbital region swollen mornings, vessels perceptibly congested, and sight very much weakened; he had lost 5 lb. in weight (since when is not stated); bowels move only every other d.; cough (dry) only noticed now on exertion; still stuffed sensation at chest, with soreness on deep inspiration; pulse 72, and rather irregular in volume and beat; heart beats violently on making any unusual exertion or continuing a usual one long. He had less strength than when he ceased taking medicine 7 d. ago; and to-night a restless feeling prevented sleep till after 1 a.m. Here the record closes. (*Ibid.*)

27. Dr. W. J. Blakeley proved iodide of A. On March 25th, 1866, he took gr. ½ of 2x trit. at 5, and gr. j at 7 p.m. At 7.15 pecu-

liar chilliness of l. thigh followed by formication and weight in l. foot, extending up leg and later to r. foot; clothes when touching limb felt cold. Chilliness, first and most on back of thigh, disappeared on application of warmth; formication (and weight) relieved by walking, later combined with pricking and burning. At 8 took gr. iss. Intermittent pain in a molar; burning heat in lumbar region, as if clothes were on fire; persistent itching at various spots, especially of back. After 2 h., with itching, early sleepiness and yawning; weakness of eyes with burning and feeling as if lachrymation would set in; tired, weary feeling in calves; intermitting pain in r. temple. 26th.—At 10 a.m. took 3 grs. At 11 dull heavy soreness of l. scalp, and dulness of head, lasting all m., with occasional malar and frontal aching. At 2.15 took 4 grs. Very severe, laming pain in l. calf, later embracing whole leg, disappearing during active motion, returning when at rest. Abdomen hard and distended with flatus, which is constantly discharged; severe cutting pains there at 6.30 as if he would have a stool, but only flatus (in large quantities) escaped, with some relief to pains, which was also afforded by warmth to abdomen; at 9 pains became intense, embracing entire abdomen and obliging him to bend almost double; after great straining passed large soft stool with some relief. 27th.—Severe frontal headache with dulness of entire head, during forenoon; l. neck stiff and sore, worse on movement. At 11.30 aching over whole head, and heaviness of limbs with weariness of whole body. Took 3 grs. Soreness of back, especially of neck, as if beaten there; pulse (11.40) irregular, 96; in health about 75. (*Hahn. Monthly*, iii, 263.)

28. E. W. Beebe, M.D., in perfect health, took, Jan. 13th, 1866, gr. j of 1_x trit. In about 2 h. afterwards, while writing, felt sharp pain in upper third of humerus of r. extremity, which lasted some 5 or 10 m., when suddenly it left there and appeared in metacarpal bones of r. hand; after continuing for some time, felt same kind of pain in shaft of l. femur. Pain seemed to be of rheumatic character, but was confined to shafts of bones (he never had any pain like it before, nor any tendency to rheumatism). Experienced no other symptoms during n., but slept as well as usual. Next m. repeated dose, but felt no particular symptoms during d., except that he felt as though he had taken cold, though he had not exposed himself in the least that he knew of; there was some slight hacking cough, with dryness and stoppage of nostrils. In e. took another dose of about gr. $1\frac{1}{8}$; in a short time afterwards had evacuation of bowels, which was soft and mushy, with considerable straining and tenesmus; it was very dark in colour, almost black. Slept well during n., but on rising in m. there was great urging to stool, but instead of the discharge being copious it was very scanty, as though anus was contracted; it was of mushy consistency, with occasional scybala, which were also small in size and of a peculiar black colour, resembling the fæces of an ox nearer than anything else; the discharge, as before, was attended by straining similar to that of dysentery. Took another dose in m. of about a grain; had no appetite, and ate nothing all d. but a few crackers and a cup of coffee, which he had been in the habit of using all the time; had some fever

during d., pulse 80 and strong; in afternoon had considerable pain in stomach, with raising of wind, and of a greasy fluid similar to that one sometimes experiences after eating salt pork. The pain and pyrosis soon became unbearable, and he took a single dose of bryonia 6th, which gradually dissipated the symptoms. Had as many as 8 or 10 discharges from bowels during d., of the same nature as before; they were especially urgent on rising after sitting for a short time; there was continual aching in anus, with seeming inability to keep the sphincter closed; this aching would amount to real dysenteric straining at stool. Went to bed at n. feeling decidedly uncomfortable; had bad feeling in head, similar to that produced by a bad cold; was very restless, and slept but little during n.; awoke next m. with a bad headache, which lasted all d.—it seemed to be of a dull heavy character, with pressing from within outwards; was worse on motion, by stooping, and by study; nose seemed quite dry, and had some fever; thirst was not very marked. Was restless again at n.; did not sleep much from pain in head; arose in m. feeling very badly; head seemed enormously large and heavy, with considerable pain. After moving about for a short time, began to hawk up quantities of thick mucus and clotted blood mixed together; this continued for upwards of ½ h., and seemed to come from head, and relieved its pain very materially—so much so that it felt quite natural again. Had no other symptoms of any note, with the exception of the discharges from the bowels, which continued for 6 or 7 d. longer, with from 5 to 10 stools per d.; colour remained the same until near the last, when stools gradually began to assume the natural colour, and left bowels in about or nearly a natural condition. There was one marked peculiarity about effect upon bowels, viz. he was not obliged to get up at all during n., but just as soon as he began to dress in m. there was great urging for stool, &c., with symptoms as given above. (*U. S. Med. and Surg. Journ.*, i, 335.)

29. *a.* Dr. Stevenson, Dec. 24th, 1850, took on three successive e. 1 gr. of 3rd trit. of metallic arsenic. Slept unusually well 1st n., and could not keep awake following e. On 25th, had ulcer on r. inner under-lip, sore when tongue touches it; gums swollen and painful to touch. 26th.—On waking, sensation as if head was swollen; pulse 68 (normally 55); pulsations felt all over body in m., especially in r. hip-joint, which feels lame, but does not really hinder walking. Again slept better and longer than usual, and was reluctant to rise next m. On 27th, a new ulcer on l. side of underlip.

b. Jan. 3rd, 1851, took for 3 e. successively 1 gr. of 1st trit. On 4th, 9 a.m., pulsation all over body, especially under sternum; pulse 68; heavy dull feeling in forehead; eyelids slightly inflamed and swollen; dry heat in palms; dry mouth, tongue white-coated; bloated feeling and burning in feet; pain and stiffness in lumbar muscles. 5th.—Pulse 68 in m., 53 in e.; in afternoon tension and fulness in abdomen, with heaviness of head and slight vertigo. At n. sensation as if hands, fingers, and feet were swollen, feels as if he could not close hands, with cracking of finger-joints; slept little, with great inclination for sleep; head also felt swollen, and face as if bloated; pain in l. head, extending to l. eye and ear. Pulse in m. 68; hot rising as

of bile; headache, worse when laughing, and soreness of scalp on least pulling of hair; bloated abdomen; debility and general sense of prostration; restless sleep with sense of fulness of head, felt while sleeping, worse when awaking. 7th.—Pulse in m. 68, in e. 43 (?); at n. burning of hands and feet; eyes so painful that he cannot read much; at n. dreams of danger, especially from water. 8th.—Pulse 72 in m., 64 in e.; pulsation felt all over; slept better, but was restless; when conscious felt as if he would have headache in m. on waking.

c. Jan. 16th.—Took 6 pellets of 30th for 5 e. running. 17th.—Pulse 49 at 6 a.m., at 9 had become 64, full, and strong, with pulsations all over body. At n. feet burning hot, dry, was compelled to keep them outside bedclothes. On 18th, pulse and throbbings as yesterday; despondency and lowness of spirits; gums swollen, feeling as if scalded; some salivation; slight l. infra-mammary pains. Slept well, feet did not burn so much. 19th.—In m. tongue coated white, and marked by teeth; pulse and throbbings same; gums better; red sandy deposit in urine. 20th.—Pulse in m. 64; itching and burning in lower part of face. 21st.—Pain in muscles of l. chest; great lassitude; throbbing all over; coryza, scalding and excoriating; face same. From 22nd to 27th, face same, with swelling; relieved by cold washing, worse at n.; forehead feels much swollen and skin stiff, tight, and fixed. Itching relieved by pressing and pinching, not by scratching. For many n. past very unpleasant dreams, especially of danger from water. Later, skin desquamated in very small scales. (Dr. LIPPE's provings, METCALF, *op. cit.*, p. 208.)

30. *a.* —, Dec. 11th, took for 6 n. running 1 gr. of 3rd trit. On 12th felt as if fumes of whisky had gone to his head; great drowsiness in afternoon and irresistible sleepiness in e. On 13th, same from 11 a.m. till n.; felt as if he should fall asleep while walking in afternoon. For 5 d. following great lassitude, weakness, and depression of spirits.

b. Jan. 16th.—Took for 6 e. 6 pellets of 30th. 17th.—Pulsations at umbilicus and in r. anterior tibial artery; deep-seated numbness in r. hip-joint, extending to pubes. 18th—26th.—Feet, usually cold, have become warm, and sweat more; numbness from lumbar vertebræ round crest of r. ilium and inside of thigh to knee. 27th.—Œdematous swelling of forehead and face, with itching allayed only by pinching; itching at seat of former numbness in thigh.

c. Took 1 dose of 6 pellets of 30th, and awoke next m. with distressing lancinating griping in bowels; afterwards one acrid, burning, watery stool, relieving pains, but leaving great weakness; he falls asleep after sitting down; pulse 60, full. (*Ibid.*)

31. From beginning of Nov., 1856, to following June, I took by way of experiment 4 grms. of arseniate of soda, a single dose taken at a time, at intervals of 2 d., beginning with 5 mlgrms, and increasing gradually to 4 cgrms. During whole period no intolerance of drug was experienced, but appetite was excessive, and I assumed an *embonpoint* quite striking to my acquaintances. Discontinuance of drug was followed by considerable emaciation, but by no other symptoms. Later, 5 cgrms. of arsenious acid, taken at supper, caused nothing more than nausea and headache the following m., with slight diarrhœa, all of which entirely disappeared in course of d. (GOUFFIER, *Rech. sur l'usage int. des prep. arsen.*, Paris, 1857.)

32. Dr. JAS. JONES took Ars. 3, in drop doses 4 times a d., for 6 weeks. He lost flesh, had some acidity and heat at stomach, thirst, and two patches of squamous eruption over external malleolus. Ten years later skin was still darker than that of rest of body, and occasionally itched. (*Annals of B. H. S.*, viii, 62.)

33. HARLES gave to healthy adults $\frac{1}{12}$th to $\frac{1}{6}$th gr. ars. every 4, 5, or more h. Effects were increase of muscular irritability and contractility, at first especially in stomach and intestines, then in arterial system; less in voluntary motor muscles of limbs. Increase of peristaltic movements of intestines. Slight contractions of œsophagus, stronger arterial pulse, increase of energy of small arteries of extremities, increased heat and appetite. Excitation of the nerves at the place where the drug is received, up to considerable erethism and increased sensitiveness. This effect is observed chiefly in the nerves of the stomach and small intestines. The pulsation of the arteries is increased in strength and frequency, even after a very small dose of ars. When the dose is somewhat increased a febrile commotion is observed in the whole sanguineous system, and if the drug is continued a kind of remittent fever is produced, not exactly a rigor or febrile chill, but fugitive heats affect the body, sometimes declining, sometimes increasing, chiefly felt in the stomach and præcordia, and also in face and forehead, terminating generally in moisture or sweat, either general or specially in face and palms of hands. This kind of fever occurs from the internal, but also from the external, use of ars. (*i.e.* when applied to cancerous ulcers). This fever, whether observed in healthy men or in cases of disease, has no certain type, like ague. The temperature of the whole body is in excess of the normal; the heat is for the most part dry (unless there is fever), and sometimes more or less pungent, but when small doses are taken it is hardly unpleasant, and (when the ars. is taken by the mouth) almost always seems to proceed from the stomach and præcordia as a centre, and spreads thence over the rest of the body, but is more especially felt in forehead and eyebrows. There is slight pinching and heat of stomach and œsophagus, seldom slightly painful, never very painful unless the dose was very large. Appetite for food somewhat increased, sometimes to greater hunger than usual, the digestion is good, perhaps increased when small doses $\frac{1}{12}$th to $\frac{1}{8}$th are given. A larger dose diminishes the appetite, causes prostration and nausea, and even vomiting. Thirst increased moderately with small doses, more with larger doses. Stools usually more frequent, loose and pappy, or if the use of the ars. is prolonged semi-liquid; but scarcely so frequent and liquid as to be called diarrhœa or yet dysentery; colic and tenesmus are only observed from larger doses, or if the med. be long continued or frequently repeated. The urinary secretion and excretion are more frequent and profuse, the urine is more profuse when the skin is dry than when there is perspiration. Long-continued use of ars. sometimes causes increased secretion of saliva, slight ptyalism, and increased and easy secretion of phlegm from the mucous glands of the fauces, trachea, and lungs, especially in persons subject to defluxion in the respiratory tubes, and to catarrhs. (*De Ars. usu in Med.*, Norimb., 1811.)

II. *Poisonings.**

* It must be remembered that this *Cyclopædia* does not profess to give a complete collection of all recorded cases of poisoning by drugs, or an exhaustive account of the appearance therein of any particular phenomena. The instructions under which we work bid us "give, in describing virulent drugs, such selected cases as may properly illustrate the various forms of poisoning by them;" and to this we have

CONTENTS.

1. A female, æt. 22, swallowed a large dose of A. She was immediately afterwards seized with intense thirst, severe burning pain, violent vomiting and diarrhœa, continuing incessantly till death, which took place in 7 h. There were no nervous symptoms. Stomach and whole alimentary canal were found extensively inflamed. (TAYLOR, *op. cit.*, p. 320.)

2. *a.* A youth, æt. 17, took more than ℥ss of A., about 11.30 a.m. By 1 he had been attacked with vomiting and very violent retching, with much distress. At 2 he was seen in bed; vomiting still frequent; heat and uneasiness in gullet, but more distressing and pungent in stomach; pulse 112, pretty sharp; skin rather hot; tongue white and dry; urgent thirst. Stomach being washed out, symptoms of gastritis diminished; but general chilliness, coldness of extremities and cramps of legs indicated approaching collapse. At 4, a very copious stool, loose, without blood, painless. Towards 6, drowsy, very sensible of cold, still vomiting occasionally yellow fluid and mucus. No pain or tenderness at epigastrium, and burning there had almost ceased; cramps extending upwards. Pulse not above 70, and small; heat of trunk below natural. About 7, evacuation of ash-coloured fluid like dirty water; general sinking; increasing drowsiness. Between 8 and 9, pulse small and irregular, 70—140. Mouthfuls of same yellowish fluid discharged from time to time without effort; thirst not urgent, but he swallowed very readily any fluid that was given. Cramp extended to abdomen, but did not cause much suffering. Continued drowsy and quiet, and died thus at 2 a.m.

b. P.M. (12 h. later).—Muscles (including heart) strongly defined and rigid, and on dissection peculiarly red and firm, especially in abdomen; costal pleura much injected;* l. heart empty, r. full of dark fluid blood. Stomach reddened much, and at one spot abraded, towards pylorus; small intestine also reddened internally. Colon and bladder much contracted.† Urine turbid, milky-white, and coagulated from heat. (*Edin. Med. and Surg. Journ.*, xxxii, 305.)

confined ourselves. It must be understood that the symptoms and symptom-groups here presented are *typical*, not isolated occurrences. At the same time, to promote confidence and aid in further study, we have under Arsenic given occasional references to cases not introduced into the text, that the wide field of its toxicology may be more fully utilised. The further treatment of individual symptoms must be left to the companion volume in preparation by the Hahnemann Publishing Society.—EDS.

* So also in Nos. 93 (℥viij of bloody serum in sac), 136, and 256 (a fowl) of BERRIDGE. (See next note.)

† The contraction of colon noted here is also seen in Nos. 94, 262–3 266 and 274 of Dr. Berridge's collection of cases of poisoning by A. in his *Pathogenetic Record*, vol. i, published as appendix to *Brit. Journ. of Hom.*

3. A large number of persons were poisoned at St. Denis by eating bread containing A. Dr. Feltz had under his care 80 cases. Most of these presented similar symptoms. Soon after the meal, sense of weight at epigastrium and general malaise were experienced. Vomiting occurred 1—4 h. after the meal, at first of food. Several presented diarrhœa at same time as vomiting, but in more than one-half there was no early diarrhœa. The latter ceased in all cases in 6—8 h., while vomiting continued 24 or even 36 h., and was frequent, of greenish-yellow mucus, and bilious matters. In some, who had no immediate diarrhœa, a slight attack occurred in course of 1st d. Others had no diarrhœa at any time. Two, who had eaten the bread for 2 d., had no vomiting, but suffered from diarrhœa for about 12 d., their other symptoms being the same as those of the rest. There was burning pain in throat, behind sternum, and in epigastrium, and at latter spot very painful sense of weight. Pulse varied between 90 and 110, and was regular; skin was dry. Headache severe, with acute sense of constriction in temples. Most patients complained of noises in ears and of slight vertigo. There was prostration, and sense of extreme feebleness in legs, with severe pain in loins: latter symptom was invariable. Urine was normal; in some, during period of vomiting and diarrhœa, very little urine was passed; in no case was there any excessive urinary secretion.

b. On 3rd d., these symptoms lessened in intensity; but without an exception there appeared at end of 2nd or beginning of 3rd d. swelling of eyelids, accompanied with conjunctivitis. In some, whole face was swollen; in some there was an eruption of urticaria; in two women eruption was scarlatiniform in character. One man suffered only from urticaria of scrotum and herpes labialis. Almost all, even those who had no eruption, suffered from irritation of skin, and in some, scratching caused a transient urticarioid rash. In eight who had eaten of bread during 2 d. there were visual troubles. Three had sensation of light in outer angle of eyes, others that of flames darting forwards, these sensations being present only when eyes were shut or in dark. On this 3rd d. there was great thirst; mucous membrane of throat was red; many presented herpetic vesicles on lips, and one man had herpes on prepuce.

c. These symptoms continued, lessening, until 7th d. Appetite was then still deficient; patients complained of a metallic taste; and throat was still red. Swelling of face and skin eruptions had disappeared, but there was still some muscular weakness and sense of weight and burning at epigastrium. By 10th d. all these symptoms had disappeared, with exception of anorexia and heat in throat. A woman who had had a scarlatinoid eruption presented now enormous œdema of legs, but without albuminuria. Another local practitioner observed jaundice in one case. (*Lancet*, May 29th, 1880.)

4. *a.* July 4th, 1860, man came under Prof. Virchow's care who had taken a tablespoonful of powdered A., dry. He had keen pains in whole abdomen without much tension; violent thirst; constant diarrhœa and vomiting; pulse hardly perceptible; sounds of heart very feeble;

deep blue complexion * (including lips and conjunctiva), with quiet respiration; skin very cold, especially on extremities; subsultus tendinum; and cramps in calves. In spite of hydrated iron, &c., death ensued in a few h.

b. P.M. July 8th.—No marks of erosion in mouth, œsophagus, or alimentary canal. Stomach greatly distended, covered externally with dirty red colouring matter; within, veins greatly enlarged, great quantity of thin yellowish-brown fluid in cavity, mucous lining generally swollen, of livid tint, a large ecchymosis at fundus. Microscopic examination showed on surface of membrane a very thick granular mass, penetrating whole tissue, but deeper in glandular part; glands very distinct, their epithelium enlarged and opaque, and in many places in advanced state of fatty metamorphosis; interstitial tissue full here and there of little globular cells, giving it a granulating appearance. Intestines contracted at places; in duodenum dark green, almost black matter, at upper part, mixed lower down with whitish mucus, which also lined jejunum. There also a gruel-like fluid, greyish or yellowish-white; in ileum and large intestine becoming like rice-water, in latter tinged with red. Under microscope this was found of same composition as in cholera, especially as regards numerous shoals of bacteria and vibriones, which perfectly corresponded with the cholera fungi described by Klob and others. Intestinal mucous membrane was dirty-white throughout; Peyer's and solitary glands much swollen from ileo-cæcal valve upwards.† Tissue of membrane throughout appeared, under microscope, full of finely granulated fat.

Prof. Virchow, commenting on this case, points out, 1st, how very similar the *post-mortem* condition of the alimentary canal is to that found in cholera; and 2nd, that the inflammation of the mucous membrane of the stomach is not such as a corrosive would excite, but rather a gastro-adenitis, very similar to that produced by phosphorus, and occurring also in various typhous forms of fever. (VIRCHOW's *Archiv*, xlvii, 3 and 4. Hoffmann observed similar phenomena in two cases. See vol. I, p. 456.)

5. A child, æt. 20 months, ate some paste consisting of honey, flour, and arsenic. He was caught in the act, and a considerable portion of the paste was forced from his mouth. Ipecacuanha wine produced vomiting, which was encouraged, and milk freely given. Between vomitings he appeared lively. In 2 h. had two natural motions, and was sleeping calmly as usual; had complained of no pain; respiration a little hurried. In about 6 or 7 h. he became somewhat restless; and soon after surface grew cold, lips livid, eyes sunk, pupils fixed and rather dilated, pulse scarcely perceptible, respiration feeble with sighing. After lying ½ h. in this condition, he expired without a struggle, nearly 8 h. after taking poison. On inspection, stomach and intestines presented little deviation from the healthy state. Stomach contained mucus and a portion of the paste, but villous surface presented no sign of inflammation. (TAYLOR, p. 319. CHRISTISON (*op. cit.*) relates twelve cases of this form of poisoning.)

* So also in BERRIDGE, No. 188 (4).

† So also in BERRIDGE, Nos. 12, 215.

6. A young woman accidentally took a quantity of A. When visited by Dr. Maclagan she was lying in a drowsy torpid condition, eyes sunk, face blue, and, like extremities, cold and clammy. She presented the most perfect resemblance to a case of Asiatic cholera in the stage of collapse. No urine passed, bowels not moved. Next d. reaction; small quantity of urine passed, sp. gr. 1015, strongly acid, showing large amouut of albumen when heated, and copious deposit of purpurine on addition of hydrochloric acid; by Marsh's test yielded abundant arsenical crust. On 4th d. passed 36 oz. of urine, less albuminous. On 8th d., extensive bronchitis; pulse 120; urine copious, but not kept for examination. 9th d., bronchitis less; urine abundant, sp. gr. 1019, much blood,* coagulating copiously by heat. 12th d., sp. gr. 1020; hæmaturia seems to have ceased, no blood-corpuscles visible under microscope, but there is still full coagulation by heat; pain in loins increased by pressure. 13th d., incontinence of urine; severe pain in thighs and legs, numbness of both feet, inability to use them; bowels constipated. 3 d. later incontinence had ceased, but she complained of strangury; no urine was passed for 2 d., and on 20th d. from taking poison she died comatose. Kidneys were found healthy. (*Edin. Monthly Journ. of Sc.*, xiv, 124.)

7. Woman, æt. 23, took part of tablespoonful of A. on m. of Feb. 11th. In 2 h. became sick, and continued to be so at intervals for some hours. At 3 p.m. was found lying almost lifeless; extremities cold; pulse scarcely perceptible at wrist; eyes bright and glistening; cornea much injected. Intense headache, increased by light and noise; quite unable to raise herself without assistance; tongue dry and morbidly red, papillæ at tip considerably raised; lips dry and covered with herpes; mucous membrane of mouth slightly abraded; face pallid and anxious; great pain in epigastric region in paroxysms, accompanied by general tremor. A zinc emetic produced vomiting of blood. 8 p.m., frequent severe rigors, pain in epigastrium on pressure; annoying sense of contraction in œsophagus. 12th, 8 a.m., intense pain about scrobiculus cordis, extending up œsophagus; great dysphagia even of fluids; breathing hurried; face flushed and anxious; constantly asking for cold water; tongue dry and parched, with papillæ much raised; pulse 110, very small; skin dry and harsh, emitting pungent odour; violent throbbing headache.† Abundant dark fæces had passed during n., after castor-oil. Leeches were applied to epigastrium, and pain subsided; returning next d. very severely, and in paroxysms. Urine, which had been absent at first, then scanty and high coloured, was on 15th highly charged with lithic acid. By 18th convalescent. (*Lancet*, 1851, i, 552.)

8. *a.* A whole family was poisoned by drinking water from a well, into which had percolated a solution of A. thrown down a drain from a neighbouring colour factory. Mr. Bickersteth found mother in a

* Dr. Imbert-Gourbeyre states that in all the literature of arsenical poisoning he can only find three cases (not including the above) where hæmaturia was observed. In poisoning by arseniuretted hydrogen it is almost constant.—EDS.

† Comp. BERRIDGE, Nos. 29, 48 (sister); in both with hyperæmia and fever as here.

dying state, unconscious, surface cold, arms in continued motion about her head; she died in a few h. Youngest son had died a week before, from "hydrocephalus," but this preceded—as also with mother—by bilious vomiting and great thirst. Latter symptoms appeared 2 d. later in eldest son and daughter; pulse very quick in both. Drinking from well was now stopped, and eldest son, who was little at home, soon recovered.

b. On 19th, both daughters and another son were suffering. Girl previously ill had no more vomiting, but was very restless, with numbness of lower extremities, indisposition to answer questions, arms in continual motion above head, as if grasping at something; skin hot but not dry; tongue dry and brown; great thirst; throat seemed dry; breathing quick and audible; pulse 125—130, not hard; heart acted forcibly. Others had similar symptoms. On 20th, all were much worse; breathing and pulse very rapid; tongue and lips dry, cracked, and covered with blood and sordes. Eldest girl unconscious, throwing limbs and body about; in other two consciousness fast departing. On 21st boy died at 4 p.m., peculiar movement of arms continuing till death. During next 24 h. girls died.

c. Body of boy examined 24 h. after death. Lungs were full of bloody serum; bronchi injected and covered with red mucus;* trachea and epiglottis presented marks of inflammation. Blood dark and fluid in body generally, but there were coagula in heart. Liver slightly enlarged, exteriorly showed many yellowish-green patches, internally of uniform slate or ash colour. Some redness in patches of mucous membrane of stomach, duodenum, jejunum, colon, and rectum; that of ileum and cæcum discoloured throughout, and solitary glands of former unusually large and numerous. Veins and sinuses of brain congested, and a little serous effusion at base and in ventricles. (*Edin. Med. and Surg. Journ.*, lxvi, 43.)

9. *a.* Man, æt. 28, after partaking of a dish in which A. had been mixed instead of flour, was seized with vomiting, which lasted 3 d. There was little else on 1st d., Jan. 28th, but on 29th head felt heavy; skin was hot, but not dry; pulse quicker; tongue dry, without redness; slight sensibility of epigastric and l. iliac regions; no stool. After a remission on 30th symptoms returned, and expression was dull. On 2nd Feb. eyes fixed; stupor, slight delirium; he tries to remove cold cloths applied to head; eyes injected; pulse 88; tumultuous beating of heart. 3rd.—Restless n.; slight delirium; dull look; confused, but able to answer questions; no headache; heart and pulse as yesterday, latter jerky, full, and strong; skin hot and dry; tongue dry. A pustular eruption (in its appearance and course analogous to smallpox) has appeared on face, upper arms, and chest; some isolated, most confluent; they formed thick scabs, and left very evident cicatrices. Almost complete loss of motion of limbs, especially of l. side; sensibility a little dull. Being bled, blood showed buffy coat.

b. From 4th to 6th more restless nights; delirium, with great agitation, especially during n.; pupils dilated, though room was dark; action of heart more tumultuous, strong pulsations, with distinct bellows-

* So also in BERRIDGE, Nos. 84, 87, 103, 219 (4, 8, 9).

murmur; pulse 110, full and jerking; copious sweats, which continued till end of month. On 7th, delirium was replaced by stupor; other symptoms same; murmur did not disappear till 12th—15th, during which time stupor diminished, but great prostration set in.

c. From 15th—20th, stupor became greater again; his appearance resembles that of a typhus patient;* dull look; noise in ears; no headache; flushing of cheeks; slight ophthalmia; decubitus dorsal; relaxation of limbs; clammy skin; great emaciation; pulsations of heart readily felt over cardiac region, but not beyond; dulness here slightly increased; sounds normal, but loud and sharp; pulse 100; no tenderness of abdomen, which is much retracted; no diarrhœa; incontinence of urine, which continued till March 10th.

d. From this point gradual improvement, but he was unable to use fingers and toes, and hand was always flexed. Motion in hands and feet continued for a long time imperfect, and he experienced acute lancinating pains like needle-stitches in them. A year later he was still unable to flex or extend the toes. (ORFILA, *op. cit.*, i, 329.)

10. Intermittence is a very important point in the history of the morbid phenomena of arsenical poisoning; there are cases in which we observe, in the course of the disease, periods of aggravation more or less marked. Thus, for instance, after a dose of poison, there will occur nausea, vomiting, colic, &c.; then for 2, 3, 4, or 5 d. the patient will seem to get better; he can take a little food; in a word, he seems to be getting convalescent, when the same symptoms recur with the same intensity, and often a second time with more intensity, and again a third time. (DEVERGIE, *Méd. legale*, sub voce. Similar testimony to the remittent and even intermittent character of arsenical symptoms is given by A. T. Thomson, Christison, Taylor, Maclagan, and others. See IMBERT-GOURBEYRE, *Brit. Journ. of Hom.*, xxiv, 77.)

11. I have noticed the occurrence of quotidian ague, which I was obliged to treat with quinine, in one of my patients who had taken gr. $\frac{24}{100}$ths of arsenious acid in 12 d. for ichthyosis. Was this a simple coincidence? I know not; all I know is that with the exception of the cutaneous affection the patient enjoyed the best of health, and that his intermittent fever showed itself at a time when there was no such malady present in the city. (BOUDIN, *Fièvres Intermittentes*, 1842. Similar occurrences are reported by DELAHARPE, *Schmidt's Jahrb.*, lxxiv, 303, and IMBERT-GOURBEYRE, loc. cit., p. 81. See also ii, 80.)

12. *a.* The wife of Dr. BUCHMANN, æt. 28, of nervous constitution, and experienced by several provings in observation of medicinal symptoms, on 14th Aug., 1858, at 6.30 p.m., drank by mistake a glass of fly-poison, which contained about gr. ½ of A. dissolved in water. In 10 m., anxiety and perspiration; oppression, as if chest were bound with hoop; burning glow over whole body; shortness of breath, especially on walking, even to sense of suffocation; strong palpitation; trembling of legs; great weakness; stupefaction and vertigo. At 7, cannot walk for weakness; nausea, and vomiting of water; cramp in jaws, can scarcely separate teeth; face distorted by spasms, features twisted, sunken, expression of anguish; burning in chest, especially at

* Compare BERRIDGE, No. 219 (8, 9).

pit of stomach; sense of faintness, with ringing in ears; sensation of dryness, soreness, scraping, and burning in throat; circumscribed burning of scalp on vertex; contractive pain over eyes and in temples; distension of temporal veins. Total prostration, so that she can only speak with great effort. 7.15, desires to go to bed, but sinks down with deadly anguish on attempting to assume erect posture; skin of face icy cold, hands and feet of burning glow internally. Forcible vomiting, as if all inside were torn loose; thereafter complete prostration, pulse weak, small, frequent, strong twitchings of whole body, she can only take breath with difficulty. After each attack of vomiting she sleeps till next; sleeps with half-closed eyes, short breathing with effort, incomprehensible murmuring and loud speaking, tossing from side to side, and endeavouring to throw off bedclothes. On awaking springs out of bed, with staring eyes, tears clothes off her, declares she is on fire internally, and forebodes imminent death. After some 10 m. of this terrible mortal anxiety, severe vomiting of bitter-tasting matter, previous to which she complains of being icy cold all over, suceeeded by glowing burning of whole surface (which always feels cold to touch), and feeling as if blood ran boiling-hot through veins; has frequent shuddering and shaking of head. Can only open her mouth a little to drink, and bites rim of glass. 9, symptoms still unchanged; also burning in eyes; eyelids frequently drawn together spasmodically, so that she can only open them with difficulty; bruised pain and creeping in all limbs, worst from knees downwards; and cramps in calves, with sense of constriction in bowels. 11.0, vomiting every 20 m.; anguish still more intense; recurring severe pain over loins, with stiffness of nape; tonic cramps in fingers; a fit of dyspnœa every ½ h., lasting 5—10 m., occurs also during sleep. If not awakened by pain, lies insensible, replies not to questions, and is hardly roused even by shaking. 12.0, as yet no relaxation of symptoms. Feels as if she lies under burden of a heavy body. 1 a.m., urgent desire to urinate, with burning in urethra and desire for stool; pappy-like evacuations (3 in h.) with much urine; burning in rectum. She cannot plainly perceive anything.

b. 15th.—Symptoms gradually became slighter during n.; vomiting every ½ h. till 5; in intervals slept with frequent startings; easy sleep from 5 to 6. This m. great debility; sensation of burning and constriction in abdomen, especially on stretching out legs; attacks of nausea; tingling in legs; on walking knees give way; pain in legs to touch; voice rough and hoarse; soreness in throat and at pit of stomach in speaking, breathing, and motion; continual desire for stool; heat and redness in face; pain of face and of scalp to touch; conjunctivæ much injected, with burning in eyes, which are without lustre; photophobia; eyes pain on movement or steadfast gazing; whites tinged yellowish; occasional humming in ears; constant thirst, as from heat ascending from stomach; heaviness in head, with stupefaction and pains in temples; taste sourish; frequent shuddering; pain in teeth of upper jaw on mastication; she could eat something, but feared she could not swallow. 9.0., feels again more unwell than on awaking, and more pain and burning in stomach and whole abdomen, which is painful on pressure. 12.0., periodically great anguish, pain in bowels and tearing

in limbs; after a spoonful of beef tea, great aching at stomach. Has been up ½ h., but cannot walk without assistance. 7 p.m. Towards 1 p.m. great desire for stool, which drove her out of bed; was faint, and had to be lifted back; thereupon severe pain in abdomen; burning in stomach and frightful anguish; oppression at chest; throat felt constricted, as if she would suffocate; cannot open her mouth; nausea and sour vomiting, with shuddering. She thinks she must die; her face is swollen, dark-red, and hot; pulse full, hard, quickened; heat felt all over body; burning in eyes and soles of feet; throbbing in head and face, as from maturing abscesses; inclination to eat, but everything is disgusting. Finally, vertigo, twitchings in extremities, stupefaction, fainting, loss of consciousness, from which she is roused by the pains and mortal anguish. This condition has lasted from 1 p.m. till now, when the symptoms are gradually declining; and she complains only of stupefied feeling, and a slight burning at stomach; feels very weak, but in better spirits.

c. 16th.—Sleep disturbed at times by anxious dreams, which awoke her. On waking, heat in head and pain in bowels; appetite poor; slight thirst; tongue coated with a thin white fur. She does not feel so well as on e. previous. Sensation as if there were an abscess under each eye; sticking and burning in eyes; margins of lids very red; photophobia; cramps of eyelids; in n. sour taste, now natural; pain of head, as if brain were pressed down by a hundredweight; pimples on forehead and chest. 5 p.m., has felt very weak all d.; symptoms of head and eyes have lessened; scalp painful to touch, and hair in places matted, in places coming out on combing; face red, puffed; from time to time during d. rapid flushes of heat in face, with anxiety; lips swollen, cracked; pain in throat on swallowing; yawning and empty eructations; frequent nausea; disgust for all food, with transient desire for this or that; soreness in bowels; desire for stool, without effect; urine passed only once, scanty, dark yellow; nose stuffed as by catarrh; soreness in larynx; cough on deep inspiration and on movement; drawing from sacrum up to nucha, necessitating bending backwards; stiffness of extremities; pain in soles on walking; on movement sensation as if whole skin were harsh, and would crack; cannot go to sleep, though she feels weary; cannot endure the least noise; cannot think long of anything without fearing to lose her senses; cannot lose the thought of dying.

d. 17th.—Uneasy sleep, troublesome dreams (of tetanus and death) alternating with anxiety; on waking knew not where she was; heavy weight in head and eyes; trembling of whole body;* faintness; disgust at food. From 3 p.m., every 5 m. attack of short, dry cough; thick yellow expectoration every h.; feverish heat; thirst; dull pain in l. temple; 4 times in afternoon thin evacuations. 18th.—Through n. uneasy and anxious; feverish; sleepless till 3 a.m.; before falling asleep rigor for 5 m., recurring on awaking at 6, and followed then by thirst, hoarseness, and pain in chest. At 9 voice, which had been quite lost, gradually returned, and at 10 she spoke as usual, but still with

* In *L'Art Médical*, l, 249, Dr. IMBERT-GOURBEYRE cites a number of cases of the "tremor arsenicalis." See also ii.

some pain in larynx. This m. voided with great straining ℥ij dark yellow urine,—first time for 24 h. 19th.—N. uneasy from cough, attacks of flying heat and anxiety up to 1.30 a.m.; then urinated as before, after which quiet sleep till 6 a.m. On waking face puffed, lips swollen, two large vesicles on upper and under lip respectively; sensation as if eruption would break out on face; cough weaker, less frequent; weariness. Twice in afternoon pappy stools. In e., some appetite; larynx on speaking still painful; cough looser; abdomen sensitive to pressure. 20th.—Menses (due on 15th) have appeared; clear pale red. Upper vesicle filled with lymph, under one with pus; stiffness in legs, she cannot stretch them out for pain. 21st.—Upper vesicle purulent, under one dried up; hair still matted. About 10 a.m. set in stiff neck, with tearing pain in head, face, eye, teeth, neck and pectoralis region of l. side, aggravated by slightest movement; head drawn spasmodically to l. Pain increased towards e., and lasted all n., declining towards m.; in afternoon, flying heat and thirst, sudden cold sweat; in e. chill for 2 h., then sweat without heat. Was obliged to sit all n. with head erect. 22nd.—Pains have left sensation as if l. half of body were contracted; stiffness and heaviness of lower extremities. Catamenia have ceased, lasting 2 d. instead of 6, scanty and pale. At 3 p.m., headache and faceache began again, going off gradually about 11; after it very cold in hands and face.* 23rd.—Pustule on face, and circular burning tetter behind r. ear. Return of l.-sided neuralgia at same h.—pains increased by touching sound half of face; tonic cramp in lower jaw and throat; loose feeling of teeth; flow of saliva. 24th.—Sleepless till 3.30 a.m. on account of continued pain; with it, coldness of whole body, pain in r. abdomen, vibration in brain as if it moved to and fro, crampy feeling in l. shoulder, cannot move l. arm. Pains have not yielded this m.; feels weaker than yesterday. For ½ h. burning and tearing in spot behind ear, during which time prosopalgia went off. Hair of l. head falling out; it is matted now only on this side; at noon, sudden flow of dark blood from vagina; pinching in r. hypochondrium, constraining her to bend forward; stiffness of neck, pain in back; cold feeling over whole body, most on l. side, also internally, especially in stomach; bad smell from mouth, anorexia. 25th.—Sleepless again till 3.30 a.m. from the neuralgia; she ran about room, moaned and screamed, rolled herself on floor, and craved for sedatives; with it perspiration of sour odour. This m. head, neck and l. shoulder feel as if paralysed; she does not like to move or speak. Still some pain, especially in l. eye; cervical vertebræ pain on pressure. Pain ceased at 5 p.m., but recurred at 1 a.m. for some hours, and thence every n. till Sept. 5th. By day she was anxious and solicitous. Great emaciation had occurred. (*Hom. Vierteljahrschr.*, x, 119.)

13. A mother, when first seen, was sensible, and confessed to having given her children arsenic, and taken it herself. She was vomiting violently, and complained of a burning sensation at the pit of the stomach; there was constant tenesmus, with passage of mucous

* The reporter, writing as on morning of 23rd, adds: "At 4 o'clock heat and sweat, without decrease of pain, till 6." It does not appear to what period these notes of time refer.—Eds.

stools; pulse small and rapid; violent delirium soon followed, with tetanic convulsions, requiring the utmost exertions of four persons to hold her in bed; conjunctiva became intensely injected; pupils, from being minutely contracted, became exceedingly dilated; eyeballs fixed upwards; mouth drawn in all directions. This state continued for some m., when calmness and repose followed, during which she expired, not more than 3½ h. after having taken the poison. The autopsy presented no points of interest. (TAYLOR, *op. cit.*, p. 321.)

14. A girl swallowed ʒj of A., and was in consequence attacked violently with usual symptoms of irritation in whole alimentary canal. After being ill for 24 h., she experienced several distinct remissions, and some repose, attended with fainting. In 12 h. more, she began to improve rapidly, pain subsided, strength and spirits returned, and stomach became capable of retaining liquids. Towards close of 2nd d., however, she was harassed with frightful dreams, starting from sleep, and tendency to faint; next m., with coldness along spine, giddiness, and intolerance of light; and on 4th d. with jerking of extremities and tingling of whole skin. These symptoms continued till close of 6th d., when she was suddenly seized with convulsions of l. side, foaming at mouth, and total insensibility. Convulsions endured 2 h., insensibility during whole n. Next e., another and similar fit; a third but slighter fit on m. of 10th d.; another next day at noon; and they continued to recur occasionally till 19th d.* For some time longer she was affected with tightness across chest and stomach complaints; but she was eventually restored to perfect health. (ROGET, *Med.-Chir. Trans.*, ii, 134.)

15. *a.* In beginning of May, Mrs. Wooler was attacked with pain and vomiting soon after dinner. On 8th she had sickly look; small frequent pulse; flatulence; frequent slight hacking cough, without expectoration; occasional discharge of mucus from bowels, with tenesmus and griping, of some d. standing; redness of eyelids and lining membrane of nostrils; loss of appetite, and great failure of strength. In 3 or 4 d. more there was anxiety, restlessness at n., and greater weakness; increased griping, tenesmus, and mucous discharge, now also streaked with blood; dryness or tightness in throat, with hoarseness; and vomiting, which had ceased, began again. Same symptoms continued with little change, save a progressive exacerbation, till 28th, when mouth was found sore,† and throat so uneasy as to prevent swallowing. Two d. later stools, previously bilious, assumed a fatty appearance owing to presence of pus, as proved by microscopic examination. Vomiting (only after food or medicine) and purging worse than ever. Tongue red and fiery; mouth and lips excoriated; anxiety and restlessness very great. June 4th showed further aggravation, and stethoscope revealed infiltration of both apices. Tuberculosis of chest and abdomen was suspected. On 8th, besides above symptoms, conjunctivæ were much injected, and anus sore. Blood-discs as well as pus-corpuscles were found in stools. On 10th, urine, which was

* For similar fits, see BERRIDGE, Nos. 121, 188 (5), 219 (17), 227; and IMBERT-GOUBEYRE, *L'Art Médical*, I, 455.

† Comp. BERRIDGE, Nos. 41, 52, 329.

scanty, high coloured, and high in density, was found to be albuminous, and to deposit blood-discs* and casts. On 13th, face and arms presented an eruption which put on the characters of eczema. Symptoms otherwise continued much the same; and, as from the first, they presented a paroxysmal tendency in point of severity. On 23rd, still worse; restlessness and weakness extreme; pulse feeble and intermitting; edge of tongue ulcerated, and palate covered with papules or pustules; hands cold and moist; vomiting severe; diarrhœa less so. To-day she first complained of a sense of stiffness, numbness, and tingling,† which she had felt in arms for 2 or 3 d. before. On 26th, all symptoms were worse, especially the vomiting, and the tingling and numbness of hands. Pulse 144—150, and very small and weak. In subsequent n. she was seized with paroxysms of tetanic spasm, gradually increasing in severity and duration, and at length becoming almost incessant. She died next m., in full possession of her mental faculties.

b. P.M. next d.—Slight tubercular infiltration in apex of each lung, and in l. a small cavity. Trachea and large bronchial tubes much injected and red. Heart small and pale, otherwise healthy. Liver slightly enlarged, saffron-coloured, friable, fatty. Interior of stomach slightly vascular in its greater curvature; smaller curvature presented groups of small vessels gorged with blood, so numerous at its larger end as to make redness almost universal and like a sheet of blood under mucous coat, which was soft and friable. Duodenum was vascular internally, and full of black matter; jejunum much in same state; ileum redder still, and throughout lower third denuded of its mucous coat in many patches, varying in size from a shilling to a crown, and here and there involving its whole circumference,—at the latter points the peritoneal coat was bare, thin, and very easily torn. Many mesenteric glands were prominent and black. Colon everywhere vascular; numerous small ulcers pierced mucous coat in ascending and transverse portions; and rectum‡ was similarly but less extensively affected. Pancreas somewhat vascular; kidneys and spleen congested.

Arsenic was found during life in urine, and after death in various viscera. (*Ed. Med. Journ.*, 1856, i, 625, 707.)

16. W. Grinley, æt. 16, took liq. pot. ars. for 7 weeks in doses of ♏iij ter die for a scaly eruption on arms and legs. The eruption had improved when seen (April 1st, 1848), but he at present suffers from the effect of the remedy. He complains of great weakness and partial paralysis of upper and lower extremities, with burning pain in feet; conjunctiva is slightly inflamed; eyes are suffused with tears; slight pain in epigastric region; bowels regular; tongue tolerably clean; urine not very plentiful, and covered with a pellicle. No pain or tenderness in spine. Complains of want of sleep at n. Took sesquiox. of iron and Dover's powder at n. On 12th, complained of more pain in feet, and there was spasmodic action of muscles of extre-

* Comp. ii, 6.

† Comp. BERRIDGE, Nos. 52, 93, 188 (6).

‡ "It is a curious fact that the rectum is sometimes much inflamed, though the colon, and more particularly the small intestines, are not" (CHRISTISON, who cites 3 cases in point).

mities. May 5th.—Less pain, and slight increase of power. 9th.—Both changes more decided. The eruption has appeared in different parts of body. 20th.—A vesicular eruption has now appeared on hands and legs, to which sulphur ointment was applied. June 1st.—Vesicular eruption has now disappeared, but scaly one still remains over considerable extent. He walks better, and has no pain in hands or feet, but hand remains stiff, so that he cannot grasp anything firmly. He is generally much emaciated. He now took iodide of potassium, and slowly gained strength. On July 4th it is noted that numbness of feet (not previously mentioned) "still continues," but that other symptoms are gradually disappearing. (HASTINGS, *Prov. Med. and Surg. Journ.*, 1848, p. 459.)

17. A young woman took 3 tablespoonfuls of ars. about 11 p.m. Vomiting was produced by warm water, and the hydrated peroxide of iron given. She afterwards had some fever, but gradually became better. Eight d. after the ars. she had severe pains in upper and lower extremities, which were swollen, but neither red nor hot. Three d. after this she almost entirely lost power over extremities, and has since continued bedridden. She can move her arms freely, and can close and open her hands, but with no force. Feet are still paralysed, but she can bend knees. (*Bost. Med. and Surg. Journ.*, xxxviii, 207.)

18. H. P. Perkins, M.D., æt. 35, never before had a day's sickness to his knowledge, had even been free from all ordinary diseases of children, as was the case with all his relatives on male side. He was, however, at the time treating himself for a dyspepsia, with biliousness and some hepatic tenderness—produced, as he thought, by suddenly leaving off smoking (which habit he had indulged in to excess for fifteen or sixteen years, average about thirty cigars a day) some three weeks previously. On Saturday, July 24th, 1852, at 4.45 p.m., he sent for a small quantity of potass-bitart., and took the powder brought him in ice-water with sugar and a little tr. gent. co. on an empty stomach. In 25 m. he was seized with giddiness and slight loss of vision, burning sensation in stomach, great coldness of surface of body and profuse cold perspiration, inclination to vomit and purge, without ability to do either, and very severe cramp in stomach and abdomen. Imagining he had an attack of cholera, he took a large dose of calomel (40 gr.) and an aromatic mixture without relief. In about 1½ h. he began to vomit, with great difficulty, and some 10 m. after to purge, and, when this had continued 15 or 20 m., to vomit and purge bloody matter. Latter did not cease till 3 a.m. (on 25th) when he became quiet. At 3.30 thirst commenced, for first time. He drank up all water, tea, &c., he had by him, but thirst increased and became distressing. This led him to suspect he was poisoned. From this time till a little after 5, being unable to walk or arouse anyone, he lay in great agony from thirst, praying for death—at length he was able to make himself heard by a servant, who brought him a pint of water, which he drank at once and immediately threw it up. He then sent for hydrated peroxide of iron and a physician, who ascertained, about 8 o'clock, that instead of potass. bitart. he had taken

127 gr. of pure arsenic. At 12, he fell asleep, and slept 15 m., but seemed in great distress. His physician had no hope of recovery, but he himself thought that he should eventually get perfectly well. On m. of 26th, 43 h. after taking the ars., he was weighed, and was found to have lost in that time 42 lb. From this time he suffered severely from cramps, constipation, and gastritis until May, 1854, when he began to be relieved of cramps, and constipation and gastritis were much improved. He now (in course of about a fortnight) lost entire use of feet, legs, arms and hands; and severe neuralgic pains set in and continued for 2½ years. These were so violent that he could obtain relief only by very large doses of morphine—he averaged daily, for 18 months or more, 36 to 38 gr. Also, on one occasion, he swallowed at once ʒviij of laudanum, without producing slightest narcotism.

He is now (April, 1857) entirely free from gastritis, cramps and constipation. His breath has a peculiar, very offensive pungent odour. Feet are still partly paralysed, so that it is difficult for him to walk any distance, and there is but little sensation as yet below the instep. There is some soreness on motion and pressure in arch of r. foot. Neuralgia nearly gone; he hopes in a few months to be entirely well.

b. Amongst first symptoms he noticed, after he suspected he was poisoned, were crimson line on gums (which he had remarked in other cases of arsenical poisoning), and injection of conjunctiva, with symptoms of iritis. His mind was all the time perfectly clear, and all his senses rather morbidly acute. For a long time he was troubled with bad dreams and nightmare, which would dwell on his mind and annoy him during d. Appetite usually inclined to be ravenous. Cramps appeared to affect all muscles of inferior extremities at once, and especially (he thought) plantaris of r. leg. Neuralgic pains were confined to arms below elbows, and to legs below hips; they did not seem to follow course of main nervous trunks. They were never darting, but always steadily increasing to climax, and then gradually decreasing. Cold air or water would always bring them on—they were worst between 9.30 p.m. and 8 a.m. Paralysis was of both motion and sensation; but he remained acutely sensitive in paralysed parts to cold. (JOHN McE. WETMORE, M.D., *North Amer. Journ. of Hom.*, vi, 369.)

19. C. Wilson, æt. 41, was admitted December 1st, 1849. About 5 months ago he took some A.; the primary effects were counteracted by prompt treatment. He felt perfectly well for 7 d. afterwards; was then attacked at n. with violent cramp in r. index, successively invading other fingers, and lastly thumb, then attacking other hand in same manner, and finally feet, pains in hands subsiding as feet became affected; whole duration of cramp was about 30 m., after which he fell into sound sleep, which lasted till m. When he awoke, he felt free from pain, but on trying to rise found that he had lost use of affected parts, and was perfectly helpless. This paralysis has continued unchanged to present time, accompanied by a feeling of heat and numbness which invaded upper extremities from tips of fingers to a point about 3 inches below elbow, and legs from toes to a point a little below knee. He has also had lancinating pains in these parts, regularly commencing about 5 p.m., and continuing until midnight. He can

neither feed himself, nor stand alone when placed upon his feet. He has dryness of throat and great thirst. Under quinine, strychnine, and electricity, he slowly but pretty steadily improved ; and on Jan. 7th first began to walk, with shuffling, unsteady gait ; soon afterwards could use his hands in feeding himself. Urine still retained traces of A. In July he was discharged. He could then walk quite well, grasp the hand with some firmness, but could not yet button his own clothing. He had had no pain for some time, save on approach of stormy weather, when peculiar painful sensations are felt in fingers. (*N. Y. Journ. of Med.*, N.S., v, 62, 177. Two similar cases are mentioned here. See also "Études des paralysies arsenicales," by Dr. IMBERT-GOURBEYRE, *Gaz. Méd. de Paris*, 1858.)

20. On Feb. 26th, 1875, Pauline Philipoff took by mistake, instead of chalk, some white arsenic. An h. after, vomitings came on which lasted 48 h. 4 or 5 d. later, she had feeling of cold and numbness in extremities. Cold then reached fore-arm and legs ; at same time, great weakness in hands and feet came on, so much so that on 10th d. after ingestion of poison she could not walk without help, and towards March 13th she had to remain in bed. From that date up to mid-April (when I first visited her) she was unable to stand on her legs. On April 19th, I made following notes : Extensor and flexor muscles of extremities are highly atrophied, atrophy being greatest where muscles are nearest to periphery ; so that bones, epiphyses, and tendons of legs, feet, arms, and hands are very apparent. However, muscles most affected are those of calves and forearms, also interosseous, thenar, and hypothenar eminences. Atrophy is also manifest, though to a less degree, in muscles of thighs and arms, especially extensors. What strikes one at first is contrast between look of health and vigour of face and trunk and that of muscles of extremities, which are wasted and atrophied. When in bed, patient can do nearly all movements, though she cannot seize small objects ; movements, however, are only slowly and awkwardly done. Each movement is followed by pain in muscles employed. Muscular power is notably weaker. Patient can shake hands, but feebly ; she can only hold objects of small size. Sensitiveness of skin is much lessened, especially in those portions of extremities nearest periphery : thus, tactile sensitiveness of palms of hands, of soles of feet, and of fingers, has entirely disappeared ; it has considerably diminished on extensor sides of feet and hands, legs and fore-arms ; the same is true of lower half of thighs, superior half of fore-arms and lower third of arms, though in a less degree. Appreciation of weight is much diminished in legs and fore-arms, in hands and feet : a weight of 150 grammes placed on calves, then on fore-arm, was not felt. She cannot sew, feel any small object, or pick it up with fingers, even when she sees—say a match ; to put a spoon to her mouth, she holds it in hollow of closed hand. She does not feel objects of same temperature as her own body ; hot water seems boiling to her, lukewarm water seems freezing cold (hyperæsthesia as to temperature). Sensitiveness to pain is increased in the parts where there is less tactile sensitiveness, *i.e.* on skin of feet, hands, and fingers ; slight prick on finger draws loud cries from her, and produces severe reflex movements. Skin of ex-

tremities is normal to look at; to touch it is very cold. Even when in a state of complete rest, she feels in legs pains which increase on motion; at n., besides these pains, she has sensation of cold which makes her constantly cover up her legs with fur, though room is well warmed. Organs of respiration, circulation, and those of abdomen, as also intellect, are normal. During illness, there was noticed no retention of urine or constipation, and no inco-ordination of movements. If she cannot stand on her legs or make normal movements, this certainly is owing to great weakness of atrophied muscles, to muscular pains, to hyperalgesia, and lastly to diminished sensation as to weight. (SCOLOSUBOFF, *Ann. d'Hygiène*, 1876.)

21. A woman took ars. twice a d., for 3 months, to cause abortion, altogether about 2 tablespoonfuls. When seen at end of this time she was in bed, looking pale and haggard, with prickling pains in both legs, from soles to about 2 inches above knees. Sensation was completely lost in l. leg, and considerably in r.; in both there was total loss of motion. She said she had been unable to get about for the last fortnight, and that for some weeks previously she had considerable difficulty in doing so. She had no appetite; bowels irritable; urine high coloured and scanty. She had lost flesh considerably, and seemed scarcely able to collect her thoughts. Labour was not hastened; and no effect seemed to have been produced on the child. (*Brit. Med. Journ.*, 1858, p. 725.)

22. A young man came to Dr. Morell Mackenzie, labouring under almost complete aphonia. At first this was attributed to commencing laryngeal phthisis; but examination with laryngoscope showed r. vocal cord performing its movement, while l. was pale, shrunken, and immobile. Later, the paralytic condition became more general, and was discovered to be dependent on chronic arsenical poisoning. (*Med. Times and Gaz.*, Jan. 11th, 1862.*)

23. *a.* A man, æt. 42, had been affected with general psoriasis since he was 15. When 27 he began to use arsenical preparations, which he took every year for 2 or 3 months consecutively, and in increasing doses; sometimes he repeated the course 2 or 3 times a year. After each his disease was ameliorated; the patches disappeared, but they recurred just as certainly after a few weeks or months. The patient thereupon was compelled to have always recourse to ars., and was so insensible to its action that he could take 5 centigrammes daily for several weeks at a time without experiencing any particularly disagreeable effects. The only symptoms felt were a little ptyalism and some slight gastro-intestinal derangement. In 1857 skin became of a permanent dirty-brown colour, especially in those parts usually exposed to light. In 1862 this man came to Dr. Charcot complaining of a symptom he had had for three months that plunged him into the deepest melancholy. His sexual functions, which had formerly been very vigorous, were seriously threatened; erections had become rare and incomplete; coitus was almost impossible. He was advised to leave

* For other cases of arsenical paralysis see BERRIDGE, Nos. 125, 236, 337, 378, 529; and IMBERT-GOURBEYRE, *L'Art Médical*, I, 88.

off A. completely for a long time; and after he had done so for 4 or 5 months the former sexual vigour returned.

b. In a second instance a man, æt. 35, who, on account of psoriasis, took for many years pills made of A. and afterwards Fowler's solution, was thereby rendered impotent. On leaving off the A. the anaphrodisia left him, but the skin disease returned with increased virulence. A fresh employment of the drug was again followed by impotence. (*Gaz. des Hôpitaux*, July 23rd, 1864. Rayer is quoted here, and Biett in *Brit. Journ. of Hom.*, xxiii, 81, as having observed the same thing. Dr. Imbert-Gourbeyre also states that Brockman treated a workman in arsenical mines who complained of diminution of sexual power since he had followed his occupation. *L'Art Méd.*, I, 176.)

24. J. G—, æt. 33, took ars. in tea. In about 5 m. a peculiar tingling sensation in l. arm, lasting about 45 m.; this was followed by nausea, vomiting, and headache, which continued till next d., when much thirst was added, with hoarseness, lachrymation, and swelling of eyelids. On 4th d., having almost completely recovered, he took 2 teaspoonfuls in coffee and milk. In about 30 m. he had headache and nausea, followed by vomiting of green matter and ropy mucus, continuing for 30 h. There were also cramps, some collapse, constriction of throat, hoarseness, and burning along œsophagus, which last symptom continued until 6th d. 2nd d., line of excoriation on integument at external angle of each eye, and desquamation of cuticle—with redness—of lids; eruption of pustules about angles of mouth; redness of fauces with aphthous ulceration. 3rd d., cough with yellowish-white expectoration, and bronchitic râles in chest; difficult micturition, but without pain; tingling sensation in the axilla (for 8 d.); heat of skin; quick pulse. 5th d., numbness of thighs and calves. 11th d., anæsthesia of fingers, and partial paralysis of flexors of forearms. A similar condition shortly afterwards attended the lower extremities, and was accompanied in both by pain persisting for a few d. In 5 weeks from commencement of illness, skin of entire body had desquamated, most remarkably so on hands.* In 6 weeks paralysis of flexors of both extremities was unabated, and accompanied with soreness on pressure. In 2½ months he was still unable to stand without support. During interval between 8th and 24th months he gradually improved, and finally quite recovered. (*Dublin Quart. Journ. of Med. Sc.*, xi, 68.)

25. A man, æt. 21, took ℥ss of A. on e. of April 26th. Emesis and catharsis continued during n., and gastro-enteric inflammation set in next d. On e. of 28th complained of "much pain throughout system, great and incessant itching of skin, some tenesmus and strangury." Improvement set in on the 30th, and the pruritus is not again noticed. (*Amer. Journ. of Med. Sciences*, 1836, xviii, 531. To these Dr. Imbert-Gourbeyre, in his *L'Action de l'Arsenic sur la peau*, Paris, 1871, adds 4 more cases. See also another in *Brit. Med. Journ.*, 1873, i, 88; and others here, ii, 26, 34, 39.)

26. Catherine J—, æt. 20, came into Hôtel Dieu more from misery than from any definite ailment, complaining only of weakness

* Comp. Berridge, Nos. 93 (P.M.), 219 (18).

of legs. From September 27th she took daily 3 doses of 4th trit. of arseniate of iron. During the first d. she had shootings in temples, coryza and obstruction of nose, lachrymation with burning in eyes. Oct. 2nd, itching on l. side of neck, with a little redness; next d., same on face. On the 5th, general pruritus; on limbs patches of diffused redness. On the following days, vertigo, troubled sight, persistent itching. These accidents ceased when medicine was omitted. (IMBERT-GOURBEYRE, *op. cit.*, where 12 other observations of the arsenical erythema are cited.)

27. Dr. KELLIE treated a chronic rheumatism with A. during 3 months, with three intermissions of 10 d. each. Fowler's solution was employed, 5—10 drs. a d. During each course of treatment, on 3 different occasions, there came on swelling of face and eyelids, then erysipelas* invading whole face and ending in desquamation at end of a week. (*Edinb. Med. Journal*, 1808. Several similar observations are recorded in Dr. Imbert-Gourbeyre's treatise.)

28. A man, æt. 27, poisoned himself with A., and died in 8 d. On 3rd d. there was an eruption of phlyctenulæ around mouth. On 4th d. an intense l. parotitis. On 6th d., after a very bad n., there appeared an urticarious eruption over whole body, face excepted. Next d. this had disappeared. (KERSTEN, *Deutsch. Klin.*, 1851, cited by Imbert-Gourbeyre, who adds 5 other instances of the arsenical urticaria, in one assuming form of urt. tuberosa.)

29. MARCHAND writes:—"Four times I have seen supervene, in persons taking A. for intermittent fevers, a papular eruption of varying seat. The papules were voluminous, caused a little itching, and were unaccompanied by inflammation. They lasted as long as the drug was continued; when it was left off they disappeared, and the epidermis came off in large thick patches." (*Ann. méd. de la Flandre occid.*, 1851 and 1854; cited by Imbert-Gourbeyre, who adds several other observations.)

30. A man, æt. 35, much addicted to drinking, swallowed about ʒij of A., but immediately vomited half of it. GUILBERT found pulse quick, irregular, weak, contracted; breathing heavy, and often interrupted by sighing; expression wild; eyes projected far out of head, they were bathed in tears, which excoriated lids and cheeks; facial muscles from time to time convulsive; voice trembling; tongue dry, and lips covered with small black spots; burning pain in bowels; unquenchable thirst; belly very tense and painful; involuntary watery evacuations, with sense as if red-hot iron were in anus; urine suppressed; fœtid sweat all over body; reason left him from time to time. Death seemed inevitable; when, after these symptoms had continued 5 d., on 6th a profuse miliary eruption† came out all over body, with general amelioration; it was renewed several times in course of a fortnight, and terminated at length in branny scales. Ulcers appeared on both heels, from which an ichorous matter was discharged; and patient recovered, but with some weakness, general trembling,‡ and frequent

* See BERRIDGE, No. 234.
† Comp. BERRIDGE, No. 219 (2).
‡ See ii, 12, *d*.

attacks of ophthalmia. (*Journ. de Méd.*, iv, 353. 1756. Imbert-Gourbeyre adds a number of instances of the arsenical miliaria.)

31. In Nov., 1857, I was called in consultation to a patient in whom a very small quantity of A. taken internally had brought about an irritation of the skin with general eczema.* The dose had been gr. $\frac{1}{30}$, repeated twice daily; and not more than 40 drops of Fowler's solution, *i.e.* gr. $\frac{1}{3}$, had been taken. (TAYLOR, *Poisons*, 2nd ed., sub voce.)

32. A robust man, æt. 67, took 5 min. doses of liquor arsenicalis for sciatica. He is now the subject of herpes zoster, which began a few d. ago. He says he had very trifling pain before rash began to come out. It first appeared behind r. ear; it now covers r. side of neck, r. shoulder as low down as spine of scapula, and r. side of front of chest as low as upper border of third rib. On front of r. arm it extends as low as about 2 inches below axilla. The vesicles are quite characteristically those of herpes zoster, with some tendency to ulcerate at parts. Looking at front of chest inflammation of skin stops abruptly at middle line, but at a distance from this, on l. side. there are a few isolated small patches of vesicles over precisely the same area as is affected on other side. There are a few isolated vesicles on l. side of neck, but they are only to be seen when looked for frequently. The amount of irritation has been much less than usual. (*Med. Times and Gaz.*, 1868, ii, 722. In this article, and in another at p. 407 of vol. i for 1869, Mr. HUTCHINSON calls attention to the frequency with which shingles occur in patients taking ars., and cites 12 more cases in which the disease appeared in its typical form, with unsymmetrical herpes. In vol. iii of *Practitioner*, p. 70, Dr. SISSON states and illustrates the same fact. Other references for it are *Lancet*, 1869, ii, 508; 1867, i, 455; *Pract.*, July, 1878; HUNT on *Dis. of Skin*, 5th ed., p. 44; *St. Bart. Hosp. Rep.*, 1873; *L'Art Méd.*, lviii, 432; *Brit. Med. Journ.*, 1882; PIFFARD, *Mat. Med. and Ther. of Skin*, p. 316.†)

33. An English nobleman, æt. 60, of good health, took—while wintering on the Nile—for a local irritation of the skin 2½ gr. of 1st trit. of ars. alb. m. and e. After 3 weeks of this medication he complained of his tongue being so dry and thirst so great that it made him quite ill. This increased; tongue became hot also, and "as dry as a parrot's;" he had chilly fits, got very pale, his face white and pinched, his pulse weak and quick, and at times very irregular, with extreme prostration. Eyelids were swelled and puffy, especially r. Medicine was now stopped, and he got rapidly better, perspiring profusely. Five weeks later he took up his residence in a villa at Florence, where the rooms which he occupied were subsequently found to have their walls coloured with an arsenical pigment. Here the cutaneous irritation, which had been better, returned more distressingly and over a larger surface. He took the medicine again; but in about a week dry mouth, chilliness, and swelled eyelids returned, and it was

* See also ii, 15, *a*; *Brit. Med. Journ.*, 1858, p. 215; *Edinb. Med. Journ.*, 1866, (Balfour).

† For simple herpes see BERRIDGE, Nos. 110, 239, and IMBERT-GOURBEYRE, p. 42.

stopped. A fortnight later, general pemphigus set in, first attacking feet and arms, then back, and then suddenly developing at once into a general red and shiny condition of skin, as in erysipelas, covered with a multitude of small blisters. The whole body swelled to nearly twice the natural size, and there was extreme irritation of the surface. General health, nevertheless, was unaffected; though pulse was weak and quick, temp. was normal, appetite and sleep good, bowels regular, urine normal. Little change till he removed to a place among the hills, when swelling began to diminish, and diarrhœa set in, lasting about two months—stools at times perfectly liquid, and as many as fifteen or sixteen a day. General state remained good, though tongue was rather red at tip; and swelling rapidly subsided. When this had ceased, the only trouble was the state of the skin, which remained red and tender (though with much less heat and irritation), and blisters, fewer but larger, formed here and there continually. Similar blisters formed in mouth, having a blackish fringe around them, and sometimes leaving blackish depressions. Under ant. tart. internally and anointing the body with oil, great improvement ensued; but all the nails came off, he was inclined to sleep a great deal during the d., and when he woke he was rather confused, and took a few m. to gather himself up. His sleep also was disturbed with dreams which were half-visions, and awoke him; while the pulse had become extremely intermittent. A little later Lord — returned to his former residence, occupying the same rooms; and after sleeping there four n. experienced a decided return of the eruption, and was not nearly so well in himself. At this point the presence of the arsenic was discovered, and he was at once removed. He continued to feel weak and shaky, and complained much of his mouth. The blackness noticed there had disappeared while he was away, but now the inside of mouth looked as if he had been eating charcoal, and the saliva, which was abundant and clear, seemed to have little black grains in it. Tongue looked sodden; many papillæ were hard and blackish; tip and edges red and very sore. The mucous membrane of mouth and tongue was cold to the touch. Lord — now took a slight cold, which, however, did not extend below throat. Some difficulty of swallowing and of expiration supervened. As he was taking some soup, suddenly his eyes closed and his head drooped forward, a dark flush passed for one instant over the face, and without a gasp he was dead.* (HUGHES, *Annals of Brit. Hom. Soc.*, ix, 486.)

34. A man reduced to powder, 14th and 15th Nov., a large quantity of A., using the precautions he had ordinarily found effective to save his face. During 2nd d. of work he had frequent desire to micturate, nausea in afternoon, and in e., after leaving off, vomiting of glairy sanguinolent mucus. On returning home, he felt nose, eyes, and mouth on fire; his throat seemed contracted, making deglutition difficult and painful; his saliva was tinged with blood. N. was bad: on 16th, respiration became painful; he felt as if pricked at innumerable points of skin. Next n. no better; on 17th, same symptoms, to

* Aëtius (5th cent.), cited by Imbert-Gourbeyre, speaks of "eruptio bullarum" as a symptom of (probably) arsenical poisoning.

which were added intolerable pain with swelling in penis, ardor urinæ, papules on hands, wrists, and forehead, painful swelling of hands and r. arm. His face was covered with pustules; his eyes became red and his lids swollen and sore; his chest and stomach painful. When physician saw him on 18th, all his symptoms were so increased that he thought he could not live; pulse was frequent and contracted, respiration very embarrassed, stomach painful, kidney, bladder, and penis gave him cruel pain, urine suppressed, eyes, face, and throat as before described. Improvement now set in, but on 19th there were still crusts on face, papules on arm, wrists, and hands, lids red and swollen. A week later he became the subject of a general pruritus, which lasted till beginning of December. (DEHENNE, *Journ. de méd.*, 1759. See other cases in Imbert-Gourbeyre; also ii, 9, *a.*)

35. G. M—, æt. 13, a strong healthy boy, drank a quantity of "sheep dipping" (a liquid containing soap, sulphur, and, besides other ingredients, a large proportion of arsenic). Violent vomiting quickly ensued whereby most of the fluid was ejected, but was followed by all the symptoms of acute arsenical poisoning. Under treatment by emetics, emollients, &c., these gradually passed off, and patient was apparently well in a fortnight; but in a month he came with his face, head, hands, and feet swollen, the surface of the whole body of bright red colour, not unlike the early eruption of scarlet fever. No constitutional symptoms. After a few d. the skin partially desquamated, and this was followed by an attack of psoriasis, extending over the whole body, including the face. At the same time the hair of his head, eyebrows, and eyelashes fell off, and the nails loosened and followed suit. No history of any skin disease in the family, and the boy had been always strong and healthy, but was now thin and anæmic. Treated for 12 months with only trifling improvement, and was then put on a course of ars. (Fowler's sol., ♏v t. d. in sarsaparilla), when the hair and nails grew rapidly; he grew rapidly in flesh and strength, and his weight increased; the scales fell off, healthy skin taking their place, and in two months the boy was again well and strong. The skin disease never returned. (J. NICHOLLS, M.D., *St. Geo. Hosp. Reports*, iv, 220.)

36. Mrs. — took 1—1½ teaspoonfuls of A. Within 2 h. she was found sitting up in a chair, tossing her arms about, apparently perfectly unconscious of surrounding objects and events. In ½ h. more she was able to speak, and said that vomiting had occurred 15 m. after taking drug on an empty stomach. Dejections now became frequent and involuntary, and continued for some d., with great excoriation and pruritus. Vomiting did not cease till after 48 h. Some of contents of stomach were green, and before entire subsidence of sickness appeared muco-sanguineous. Gums swelled much; mouth sore; œdema of face and feet; paralysis of hands and feet; remarkably small and indistinct pulse, with kind of spasmodic catch in breathing, and sensation in head as if a carpenter was at work with hammer and chisel; gritty feeling in eyes, which she was continually rubbing. After 8 or 9 d. she was able to leave her bed, complaining only of boils* in different parts of body, costiveness, conjunctivitis, lameness in

* See also IMBERT-GOURBEYRE, p. 75.

walking, with loss of feeling in hands and feet. (*Lancet*, 1845, i, 640.)

37. Dr. M. D. THOMPSON visited a lad, æt. 18. He was cold, pulseless, restless, complaining of cramp in upper and lower extremities; countenance sunken; anterior part of neck and chest livid. Had been attacked with vomiting and purging 6 h. previously. In 1½ h. he was much worse and died. *P.M.* Integumeuts of neck and anterior part of chest, arms as far as elbow, lateral parts of chest bounded by cartilages of false ribs, whole of back part of body as far as knees (except nates and dorsa of scapulæ), were copper coloured. The colour was not in elevated spots, like secondary syphilis, but was diffused without any apparent elevation over whole surface described. There was intense venous congestion within head and thorax. A. was found in the body. (*Ibid.*, 1840—1, i, 882. IMBERT-GOURBEYRE cites several observations of "pétéchies ou ecchymoses arsenicales," though none so widely diffused.)

38. Some years ago, a patient of mine who came annually to Royat, thought well, at his own instance, to add to each glass of mineral water some drops of Fowler's solution. Thereupon appeared large brown patches on each side of forehead, which persisted several d., and only vanished on his abandoning this curious mixture. (IMBERT-GOURBEYRE, who adds several other instances and testimonies of the occurrence of similar discolorations.)

39. May 3rd, 1857, a young woman came for treatment of a quotidian of 5 d. standing. She received 4 dr. of Fowler's solution in three doses daily, taking it for 12 d., fever ceasing from 6th d. During the last week there was considerable itching about neck and arms, without sign of eruption; and during last 3 d. there was seen about neck desquamation as after scarlatina. (IBID., who adds other observations. See also BERRIDGE, Nos. 93 and 219 (9).)

40. Van den Dale is quoted in Frank's *Toxicologie* as the observer of a case of poisoning where during the first 10 d. there appeared, in connection with a pseudo-membranous diarrhœa, general desquamation and falling of hair and nails. (IBID., with other testimonies.)

41. Schaffer has related a case of chronic poisoning with divers phenomena belonging to paralysis of limbs, which patient survived. There was a remarkable state of the nails, which were hard and eroded, the terminal phalanges being much atrophied. (IBID. See also BERRIDGE, No. 543.)

42. As a proof that the area Celsi (alopecia areata) can be produced by a derangement of the nutrition of the hair soil, I give the following case in which a disease of the hair soil which had all the characters of alopecia areata came on after the internal administration of ars. for a long time, and on leaving off the ars. healed spontaneously. A boy of 6 was brought to me on 21st April, 1868. For 3 years has suffered from fits, the longest interval between which was 4 weeks, but he sometimes had several in 1 d. In these fits he loses consciousness, does not know anyone, jumps about, laughs and sings. The fits last from 5 m. to several h. After fit, yawns and complains of cold. The boy's memory is bad, and intelligence not great, but he is sly and given t-

Appetite great; stool constipated. On 21st April, got sol. Fowleri 5 grms., Aq. mellissæ 10 grms, 3 drops to be taken m., noon, and n. —28th. He got 4 drops for a dose three times a day. The fits only returned once in 8 d. The medicine was continued in increasing doses till he took 15 dr. 3 times a day = 5 dr. of the sol. Fowleri 3 times a day. During this time the mother told me that the boy's hair came out much, and one spot of the scalp was bald. This spot was on occiput above protuberance, the size of a crown, round and bald, only a few thick black hairs and some downy hair grew on it. The skin of the spot was quite soft, smooth, without scales or scabs. There was a smaller spot, size of half-a-crown, on the l. parietal protuberance, of exactly the same character. There were no microscopic fungi on or near the hairs. I discontinued the arsenic, and when I saw the boy 2 months later his hair had grown thickly all over. In other respects he was no better. (WYSS, *Arch. d. Heilk.*, 1870, xi, 395.)

43. On two successive e., after taking some gruel prepared by the poisoner, a man was attacked by pricking and burning of tongue, throat, stomach, and bowels, and with vomiting and purging. Five d. after, he had inflamed pimples round lips, and sense of burning in mouth; nostrils similarly affected; eyes bloodshot, with burning pain; tongue swollen, throat red and excoriated, and in both a tormenting sense of burning; he had likewise swelling, with pricking and burning pain, of belly; excoriations and ulcers round anus, and intolerable burning there; vomiting and bloody diarrhœa; low, tremulous pulse; laborious respiration; and great difficulty in speaking and swallowing. He died on 9th d. (CHRISTISON, *Poisons*, 3rd ed., p. 306. Ulceration is a frequent occurrence in those who work with A., as shown by Imbert-Gourbeyre.)

44. A lady was poisoned by her maid with fly-powder and white ars. Her symptoms were those of universal inflammation of the mucous membranes, and of the fundament and genitals, both of which became gangrenous, both during life and on *P.M.* inspection. (BACHMANN, quoted by Christison, p. 305. Dr. Imbert-Gourbeyre, in ch. ix of his treatise, cites other instances of gangrene produced by A. See also II, 65.)

45. Professors Grohe and Mosler, of Greifswalde, in a case of acute arsenical poisoning of a child of 2, who died in 13 h., found steatosis in liver, kidneys, heart, and diaphragm. There was also great tumefaction of Peyer's patches and solitary glands in ileum, and great redness and swelling of the mucous membrane of the large intestine; also considerable atelectasis of lungs, and a recent endocarditic enlargement of the aortic valves. (Virchow's *Archiv*, 1865. Three years later, Dr. Roth observed similar steatosis of liver, reins, and heart in a man dying (3½ d.) from same poison.—Caspar's *Wochenschrift*, 1868.)

46. Woman, æt. 20—30, was admitted to St. Thomas's Hospital at midnight, Jan. 17th; for about 2 h. she had had nausea, faintness, great thirst, considerable pain and burning heat in epigastric region, heat and dryness of fauces, and constant desire to swallow saliva. After an antimonial emetic vomiting came on; pain increased; voice became very hoarse, and on admission pulse was 130, and small;

stomach-pump was used, and emollients given in intervals of (hourly) vomiting. In m. no great change, save more tenderness of abdomen; breathing rather hurried; pulse 120, small. In e., prussic acid for vomiting. Next m. this was found relieved; tenderness of abdomen was more diffused, but less acute; breathing almost entirely carried on by diaphragm and thoracic muscles; could not take deep inspirations without pain; obscure crepitation at base of both lungs; pulse 130, contracted, and very small; tongue red and dry at tip and edges, and coated with a light fur; bowels open, stools fœtid and dark; urine scanty. Blister to epigastrium. On 20th, pain, vomiting, and tenderness less urgent; pulse almost imperceptible; fluttering and irregular action of heart; tongue moister; less thirst; bowels open; breathing easier. 21st.—Towards n. extremities became cold; surface of body covered with clammy sweat; face livid, countenance anxious. Some irritation about urinary organs, and a good deal at anus. Action of heart became irregular, breathing difficult, pulse imperceptible; and she died next m. At *P.M.*, 8 h. later, lungs were found heavy and dark; on section cut surface appeared bright red, glossy, and smooth; it resembled neither the granular appearance of pneumonic hepatisation nor the defined homogeneous structure of the clot in pulmonary apoplexy. It was probably the first stage of pneumonia, the appearance being produced by extensive engorgement or congestion of the pulmonary capillaries, no effusion having as yet taken place. (*Lancet*, 1839—40, i, 706. See also CHRISTISON, p. 281, 319.)

47. M. SAINT PHILIPPE publishes (*Gaz. Méd. de Bordeaux*, 1878) two cases in which the internal administration of A. was followed by urethritis. The first was a man, æt. 46, suffering from malarial fever, for which A. was prescribed. He had, however, taken but a small (gr. ·16) dose when he exhibited all the signs of poisoning. On following d. he was attacked by urethritis. He positively affirmed that he had not been exposed for more than 2 months previously. The other patient was put upon A. for some skin-trouble, but owing to a mistake he took double the dose ordered, so that at the end of 8 d. he had taken 16 milligrammes. Symptoms of poisoning now showed themselves, and at the same time the commencement of a well-marked urethritis, which yielded to the usual treatment in 15 d. Here again exposure was denied for a long time previously; and, taking this case in conjunction with the foregoing, M. Saint Philippe was forced to admit an arsenical urethritis. (*Lond. Med. Record*, 1878, p. 214.)

48. A woman, æt. 25, took A. in water. Death took place in 9 h., after excessive vomiting and some purging and cramps. At *P.M.*, besides usual appearances, ovaries were found dark-coloured, and lining membrane of uterus and Fallopian tubes vascular; posterior part of lungs was engorged, giving out a frothy fluid on section; a purulent one issued from bronchial tubes, and lining membrane of these and of trachea was red. (*Dublin Med. Press*, xxiii, 241. Christison mentions a case recorded in Pyl's *Aufs. u. Beob.*, i, 50, in which same appearance of uterus and Fallopian tubes was presented.)

49. A woman, æt. 50, was severely attacked with vomiting and purging, after eating soup subsequently found to contain A. Next m.

she was better, but had difficulty and pain in urinating; free discharge of blood from uterus during n.; she says it is a return of the menses, which had ceased for 5 years; it resembles menstrual blood. During next 3 d. discharge continued, but in small quantities. Swelling in face and joints supervened. (*Amer. Journ. of Med. Sc.*, xv, 259.)

50. A man suffering from pain and swelling of l. parietal bone, ulceration of r. cervical glands, and other signs of scrofula, took Fowler's solution, 10 drs. twice a d. This made him feel sick, and caused vomiting, and made him feel uneasy and unwell all over. In 14 d. his legs began to be painful and to swell towards e., so as to hang over his shoes. The dose was diminished to 7 drs. Legs continued to swell in e., but were not so painful, and he was free from sickness. Dose was again increased to 10 drs., and continued for 7 weeks. Legs continued to swell. Medicine was now stopped, and patient went to seaside. While there, he was better save for swelling of legs, but on his return home general dropsy came on in the most rapid manner; legs and thighs were very much swollen; penis œdematous and greatly enlarged, scrotum likewise; lower abdomen hard and swollen; pulse intermittent, and breathing beginning to be difficult. Kidneys acted naturally, and there was no loss of muscular strength. With tonics and digitalis he finally recovered. (ASTBURY, *Edin. Med. and Surg. Journ.*, xv, 415.)

51. C. J. W—, æt. 23, was treated for tubercular phthisis with 5 drops of Fowler's solution 3 times a d., commencing Dec. 16th. On Jan. 8th, he was found "suffering from sorethroat, and general œdema extending even to his palate. His belly was the seat of obscure fluctuation, and the anasarca was so great in his legs as to oblige him to wear loose india-rubber shoes." There was no disturbance of stomach or bowels, and general appearance was better rather than worse. Urine was 1026°, acid, deposited urates on cooling, and proved albuminous when tested by heat and nitric acid. A few very pale tube-casts were found on microscopical examination. All disappeared on suspension of drug, but on its resumption a month later œdema suddenly developed while taking 4-drop doses. "He was breathing uneasily, and singularly swollen." Urine was as before (examined previously to second course of drug, it was quite free from albumen). Same results followed suspension and subsequent resumption of drug. (WEIR MITCHELL, *N. Y. Med. Journ.*, i, 170.)

52. Woman, æt. 42, subject of lepra vulgaris, took same for six weeks, in 5—10-drop doses, without effect. Then slight puffiness under eyes appeared; but, urine being normal and lepra about to yield, drug was continued. Soon after, she was found in bed, "the anasarca now so extensive as to alarm me. Her whole body was swollen, and even the palate was œdematous, but she complained of no pain." Pulse was 120; skin hot and dry; urine acid, 1023°, containing albumen in small amount, and showing a few very pale tube-casts. I learned from the patient that she had taken cold after last calling upon me, and had fever, muscular pains, and nasal catarrh, during which dropsy suddenly increased. (*Ibid.*)

53. *a.* A young man was brought into hospital at 10 a.m. on June

9th, 1873. He had been seized 2 d. previously with vomiting, followed by purging. Both continued till now ; face was drawn and livid, eyes not deeply sunk, lips violet and cold, as was also nose. Body, and especially thighs, showed large blue spots, and whole surface was cold. Tongue was icy, and covered with a thick bluish coat. Temp. was 35·2°. Matter vomited was green ; patient complained of inextinguishable thirst, but of no pain, tenderness or constriction of alimentary tract. Pulse imperceptible in radial and brachial arteries, but feebly felt in axillary. No urine had passed since vomiting first set in ; catheter drew off a small quantity only, which on testing showed no albumen but some sugar. A hot mustard-bath, with ice and stimulants, was given. In e. vomiting and (green) diarrhœa persisted ; there was no urine ; extreme anxiety had supervened ; crampy pains were felt in muscles, especially of arms. Rectal temp. 38·6°. During n. agitation ; thirst and cramps increased ; and patient died at 4 a.m.

b. P.M., 29 h. later. Abdominal viscera very hyperæmic, with hæmorrhages here and there ; liver of great size, soft, friable, with greyish-yellow patches ; gall-bladder gorged with green bile. Microscopic investigation showed steatosis everywhere, in liver especially. In cranium, pia mater and arachnoid showed the intense lesions of most evident meningitis in its first stage ; whole encephalon was hyperæmic, especially corpora striata. Heart showed numerous hæmorrhages under pericardium and especially endocardium of l. side, with clots in muscular substance.

Arsenic was found in abundance. (MARTINEAU, *France Médicale*, May 14th and 17th, 1873. Dr. IMBERT-GOURBEYRE, *L'Action de l'Arsenic sur le Cœur*, Paris, 1874, has shown that the cardiac lesions here met with are so frequently encountered as to be quite characteristic of the drug. He further supplies numerous instances of palpitations, cardiac dyspnœa, hypertrophy and constriction of the heart, and (serous) pericarditis excited by it. See also here, II, 9 *b.*)

54. A man took, June 10th, 10 p.m., 15½ drachms of A. with suicidal intent. In 1 h., there was abundant vomiting, then colicky pains and repeated stools. Finding death tardy, he filled his pockets with stones, and threw himself into the Rhine. He was drawn out, and taken to hospital at 8 next m. His face was then pale, altered ; weakness extreme ; coldness of extremities, nose, and ears ; pulse small and frequent ; tongue moist and cold ; sharp abdominal pains and liquid stools ; mind clear, answers slow, absorbed in gloomy thoughts. Peroxide of iron was given, and provoked repeated vomitings. Two h. later, reaction set in ; warmth returned to extremities ; face less drawn and of better colour ; answers more easily given. At noon, reaction was considerable ; face red and swollen ; pulse full and frequent, skin hot ; vomiting and liquid stools continue. Patient was bled and leeched, and nitre given. In e., reaction had abated ; he had a good n., except a little delirium ; next d. was much better, and on 13th all symptoms were gone. But he stated that on previous e. he had felt in l. leg rather acute pains which had disturbed sleep ; leg was a little cold to touch and painful on pressure, otherwise natural. Next d., pain in leg was very acute, and toes remarkably cold and void of colour. On

15th, foot and leg were cold and livid, as it were cyanosed, with blue patches as high as knee, very painful on pressure. Pulsations of l. femoral and popliteal arteries were less strong and full than those of r., and those of post. tibial could not be felt. Mortification progressed, and leg was amputated on 20th. No artery required tying save femoral. Patient gradually sank; sphacelus attacked stump, and he died July 1st. In severed limb there was mortification of soft parts in almost their whole extent; redness in patches of chief arteries, which were also at points obstructed by clots; veins containing some clots, but themselves sound. Crural stump showed commencing gangrene of integuments and muscles; chief arteries thickened, reddish, and containing soft non-adherent clots; in femoral vein, close to section, a consistent clot, and above it sanious pus as high as vena cava. (FORGET, *Gazette des Hôpitaux*, 1850.)

55. The microscopical and chemical peculiarities of the blood under the action of A. are of great importance in relation to the changes which the solids undergo, to the hæmorrhages from the nose, the digestive canal, the urinary passages, to the ecchymosis found in the lungs, pleura, pericardium, and heart, and to the occurrence of dropsy, during the use of this medicine. The production of serous effusions as an ordinary effect, and of chronic anæmia as the consequence of prolonged exposure to arsenical influences, appears to furnish grounds for believing that in sufficient doses A., like mercury, tends to disintegrate the blood-corpuscles,* to diminish the proportion of fibrin, and possibly, also, to attack still more directly the vital principle upon which the normal qualities of the blood depend. (STILLÉ, *op. cit.*)

56. *a*. Two years previously a photographic artist, æt. 30, had suffered from chronic syphilitic throat, but quite recovered his health. Dr. Parker found him in bed suffering from intense pain in region of stomach, not materially increased by pressure. The abdomen was swollen and tympanitic, intense thirst, but the smallest quantity of cold water could not be retained; pulse 100, regular, soft, weak; skin moist, cool; tongue moist, thin white fur; urine scanty; respiration natural; countenance anxious, features contracted. For 4 weeks he had suffered from pain after meals, and could take nothing but light farinaceous food. On questioning him as to the cause of the pain and suffering, it appeared he had been in the habit of using arsenic for years, "but it has never before injured me" he said. Struck with the reported results of arsenic eating in Styria, he resolved to test it in his own person. At first he took minute doses, measuring the quantity with the eye; he pointed to a one-grain pill of opium as about the bulk he had been daily using for the last 5 months. He had hoped by increasing the dose he would be relieved of his painful dyspnœa. He thought his spirits and general feelings were at first better under its use; but his complexion, instead of becoming clearer, was made more dingy; no effect on the respiratory organs or muscular system. His genitals were stimulated by its use. Parker, who reports the case,

* "Drs. Cutler and Bradford, from their experiments conducted according to Malassez's method, are led to conclude that A. in health causes a progressive decrease in the number of the red, and especially of the white, corpuscles" (RINGER).

found afterwards that this person was noted for his amorous propensity.

b. Two d. after, pain ceased, and he complained mainly of distress in the respiratory organs. No change to be seen in eyes or fauces, but the mucous membrane of anus was red and irritable. Later in d., pain and vomiting returned. On 3rd d., he was worse, burning pain in stomach and vomiting; countenance darker and more hippocratic; tongue furred, but moist; rectum would not retain the beef-tea injection. Although pulseless, when exempt from pain (which was occasionally the case for a few minutes) he said he felt quite well, and strong enough to walk. He did descend a flight of steps and return again. At 10 p.m., no pulsations in radial, temporal, or subclavian arteries: heart's sounds very indistinct and confused, could just be detected with stethoscope, pulsations not to be counted. He spoke in a firm tone of voice, rose again from bed unassisted, went to the chair, but could void neither fæces nor urine. Only a few drops of urine had been voided during the past 24 h. The intense thirst and irritability of stomach had passed away. Next d. he grew weaker, abdomen became very tympanitic, body cold, respiration 20 and laboured; talked incoherently; died in e.

c. Post-mortem appearances.—Whole body enormously swollen and disfigured, abdomen distended to its utmost limits; rigor mortis extreme; countenance livid. Emphysema and capillary congestion were general on surface of body, air could readily be detected by touch wherever sought. Penis and scrotum were black and swollen; when pinched the air escaped in bubbles with venous oozing. Blood in brain and rest of body was black and very fluid. Membranes of brain firmly adherent to cerebral surface at point of junction of parietal with occipital bone, extending continuously down through the tissue dividing cerebral lobes to the tentorium cerebelli. Substance of brain firm; ventricles contained a small amount of fluid. Pericardium contained 2 oz. of fluid; left ventricle largely hypertrophied and firmly contracted; walls of r. side of heart attenuated; ventricles empty, auricles full of dark liquid blood. Lungs congested; œsophagus sound. About 2 quarts of fluid in peritoneal cavity. Stomach congested over cardiac half, and again towards duodenal end; mucous membrane soft, between this and muscular coat air was freely distributed; also patches of extravasated blood. Duodenum almost black, colour became lighter and congestion less as ileo-cœcal valve was approached. Many large patches of extravasation were observed, especially beneath peritoneum covering ileum. Large intestine slightly congested and here and there, small patches of extravasation in its walls. Rectum inflamed throughout, but especially in neighbourhood of sphincter. Liver natural in size, of peculiar dark greenish colour throughout; gall-bladder full of black bile, spleen loaded with blood. Kidneys of usual size, but much congested; bladder empty and contracted; urethral orifice congested. Careful examination by experts yielded no traces of arsenic, except very slight ones in the liver, and even this could not be found by one examiner. (D. PARKER, M.D., *Ed. Med. Journ.*, x, 116.)

57. W—, an arsenic-eater, reports that on leaving it off for 2 or 3 d. he feels slight languor and loss of appetite. On two occasions he

tried to leave it off altogether. The second time, on 3rd d. of 2nd week after cessation of drug, he was attacked with faintness, depression of spirits, mental weakness, and a total loss of the little appetite he still had; sleep also entirely left him. On 4th d. he had violent palpitation, accompanied by profuse sweat. Inflammation of lungs followed, and he was laid up for 9 weeks. The results on the former occasion were very similar. (HEISCHE, *Pharm. Journ. and Trans.*, 2nd ser., i, 556.)

58. The solution, when administered in small doses, will generally be attended with no operation; yet it will frequently produce a nausea, often accompanied with a slight griping, or an open body; seldom with vomiting or purging. When it is given in large doses, especially if three times a day, it will generally excite a nausea and vomiting, or a nausea with griping and purging; and sometimes these effects are combined. Certain swellings, especially of the face,* or a loss of appetite, will sometimes attend the larger doses, and now and then even the smaller ones. In several instances it has proved evidently diuretic; yet in two or three it has seemed to diminish the natural urinary discharge. In a few cases it has occasioned an uneasiness and pain at the stomach, or a slight general eruption like the nettle-rash; and in a very few instances it has seemed to produce a sweat, a headache, or slight tremors. (FOWLER, *Med. Reports of Effects of Arsenic*, 1806, p. 94. From observations on 320 cases.)

59. M. Devergie has been the first to call attention to a phenomenon which appears at the subsidence of squamous diseases, and especially psoriasis, treated by arsenical preparations; the surface affected takes on in its whole extent a brown tint which does not vanish for several months. Moreover, under the influence of the same medication, there will manifest itself on the arsenical spots a secondary eruption consisting of certain pimples, red and isolated, multiplying slowly, but (if the drug is persisted with) continuously. On this point my personal experience is in entire accord with that of M. Devergie. In some much rarer cases we may observe, after the internal administration of A., pustular, ecthymatous, furuncular and ulcerous eruptions. (BAZIN, *Affections cutanées artificielles*, 1862, p. 194. At p. 196 Bazin relates a case in which ecthyma-like pustules appeared after the consumption of gr. $\frac{5}{8}$th of A. during 14 d.)

60. *a.* A full dose of A. being administered at regular intervals, in a few d. (or possibly weeks) a prickling sensation is felt in the tarsi, and the conjunctiva becomes slightly inflamed. At this crisis the disease is brought under arrest. . . . The dose may now be reduced, and in some cases a very small dose taken with exact regularity will suffice to keep the eyelids slightly tender and the skin healing. . . . A slight degree of conjunctivitis, in about 49 cases out of 50, takes precedence over the more grave affections—gastritis, colicky pains,

* "Under the influence of continued small doses a characteristic puffiness of the face arises, with œdema of the eyelids, which at first is most visible in the morning, but it is afterwards more permanent and extensive, occupying the ankles, limbs, and abdomen with a dropsical effusion" (STILLÉ). See also *Edinb. Med. Journ.*, v, 15; IMBERT-GOURBEYRE, *Action. de l'Ars. sur la peau*, ch. xiii; and WEIR MITCHELL, *N. York Med. Journ.*, i, 169 (ii, 51, 52 here).

vomiting—which indicate an over-dose. . . . In exceptional cases, tenderness of the soles, and more rarely of the palms, presents the first indication of an over-dose.

b. Whereas conjunctivitis is the primary effect of small doses of arsenic, it has also after a time a secondary effect. The trunk of the patient first, and subsequently all those parts of the body which are by the dress protected from the access of light and air, become covered with a dirty brown, dingy, unwashed appearance, which, under a lens, reveals a delicate desquamation of the dermis, and is, in fact, a faint form of pityriasis.* . . . Now and then a delicate papular eruption (lichen arsenicalis) will show itself suddenly under a course of A. and as suddenly disappear under a few doses of the liq. amm. acet.

c. Excessive doses often produce so strong and lasting an impression on the nervous system, especially in delicate subjects, as to render it, for months or years subsequently, so intolerant of the medicine, even in the smallest doses, as absolutely to interdict its use. After a week or two of 5 min. of Fowler's solution 3 times a d. such patients complain of nervous tremors, disturbed rest, horrible dreams, and other affections of the sensorium. (HUNT, *Diseases of Skin*, 5th ed., p. 20—25.)

61. I have seen very minute doses of A. given to patients affected with lepra, and continued for many days, without being able to detect the least indication of its action on the system, except the amelioration of the disease. When the dose was slightly increased the appetite in some cases appeared to be increased; but the effect was neither universal nor continued. Very shortly afterwards, a sensation of heat in throat, œsophagus, and stomach, came on, occasionally with nausea, but seldom with vomiting; in a few cases, with gastrodynia, a febrile condition of the body was set up; there were dryness of skin, increased secretion of urine, relaxed bowels, sometimes with griping; the patients usually complain of great languor, inaptitude for employment and want of sleep; and sometimes these symptoms were accompanied with, or followed by, pricking or irritation of the tarsi, redness of the eyes, a slight degree of conjunctivitis, and certain swellings, especially of the face (œdema arsenicalis). (PEREIRA, *op. cit.*)

62. The single or not often repeated administration of small doses (0·001—0·005 grm.) gives rise to rather vague symptoms, varying in different individuals, and with difficulty recognisable or appreciable. There is feeling of warmth in œsophagus and stomach, and appetite is increased so that there is feeling of hunger. The various functions are more energetically performed; among them those of heart and brain, respiration and temperature, and those of the excreting and genital organs. But if even these small doses are continued for a long time, serious symptoms of poisoning set in. There is feeling of constriction in throat, dryness there and in mucous membranes generally, pain in region of stomach, nausea, vomiting, and purging; there is also fever accompanied by headache and sleeplessness. When the drug is suspended the health may be entirely restored. (NOTHNAGEL and ROSSBACH, *op. cit.*)

* Dr. ROBERTS, in his *Theory and Practice of Medicine*, relates a case of pityriasis rubra caused by A. (2nd ed., p. 793).

63. Even medicinal doses, if long continued, will induce in some persons a dyspnœa allied to that of emphysema, or even asthma, with dry cough or hawking of mucus. This I have verified several times in the subjects of eczema, observing its cessation with the omission of the drug, and its return under arsenical influence. (PHILLIPS, *op. cit.*)

64. When A. is given in medicinal doses one of the first constitutional symptoms produced by it is an acceleration of the heart's action; this, as Dr. Duffin has remarked, and as I have seen, sometimes becomes quickened after a few days by 10, 20, or 30 beats per minute, the pulse also becoming hard and wiry.* This acceleration is particularly observable in those of sanguineous or sanguineo-nervous temperament, in whom the heart's action is readily excited by physical exertion or mental emotion. In some cases before, but usually after, this acceleration, there appear evidences of irritation of the mucous membrane of the stomach; there will be more or less thirst; the tongue becomes coated towards centre and root, with red sides and tip; loss of appetite and sense of weight in the epigastrium; about the same time there will be heaviness and pricking about the eyelids, with flashes of light before eyes when closed, and after a time eyelids become puffed and droop, giving the countenance a peculiarly melancholy and careworn appearance; there will be more or less headache, chiefly over brows and lower part of forehead; this headache is very often one of the first symptoms. There are very commonly confused and horrible dreams, especially in children. Girdlestone has remarked that in some cases the skin assumes a uniform lobster-red colour, that erysipelas comes on, or that phlyctenæ and pustules appear. I have frequently seen that the disease of the skin for which A. is given, more particularly if it be chronic eczema, has evinced a decided tendency to increased action, the patches becoming red and irritable. If the A. is still continued there results great irritation about mucous membrane of stomach and throat; headache increases in severity; urine high coloured; countenance, which has become pale and sallow, will assume a remarkably sorrowful and anxious cast; tremors of limbs come on, with an occasional feeling of faintness; and the foundation of incurable and permanent disease may be laid in nervous or digestive system. In some cases the first symptom is a degree of thirst and feeling of oppression about epigastrium; in others, and this is very common, headache with disturbed dreams; and, usually antecedent to, or coincident with, any one of these symptoms, acceleration of pulse. A young lady took Fowler's solution for psoriasis of legs to such an extent that it caused excessive derangement of stomach, followed by a violent neuralgic attack, together with, at a subsequent period, a distressing train of hysterical symptoms which terminated in a state of dementia, which has now lasted nearly four years. A. is very badly borne by plethoric or highly sanguine or sanguineo-nervous people. In these cases the pulse becomes rapidly accelerated; irritation and even subacute

* This hardness (there called "sharpness") of pulse was noted in a case of poisoning by Dr. Ward, and after death heart was found smaller than usual, and hard like a spasmodically contracted muscle (*Edin. Med. and Surg. Journ.*, xxxiii, 61). —EDS.

inflammation of gastric mucous membrane supervenes; there is headache, and a sense of tension or weight in forehead, and the skin disease becomes aggravated. (ERICHSEN, *Med. Gazette*, 1842, ii, 196, 238.)

65. Liquor arsenicalis was prescribed for a lady affected with cutaneous disease in doses of 5 drops (=gr. $\frac{1}{24}$th of arsenious acid) gradually increased to 15 drops (=$\frac{1}{8}$th gr.), 3 times a day. After continuing these doses more or less for a month, she was found labouring under the following symptoms: obstinate diarrhœa, frequent griping pains in bowels, with almost constant desire to act; considerable tenderness over whole abdomen,* which was distended; constant pain and nausea after taking food, and frequent vomiting; skin cool and dry; intense thirst; tongue clean and red, resembling raw beef; pulse 100, small and feeble; sense of constriction in throat, and copious flow of saliva; she had some gastric cough, with frequent raking of the throat and fauces, and expectoration of a muco-purulent secretion mixed with blood. There was much pain and tenderness down spine, with frequent muscular tremors, and a crampy feeling of lower extremities, with partial loss of motion and sensation; they were swollen, of a livid colour in places, and showed a tendency to slough. There was great emaciation, want of sleep, owing to irritable state of bowels; motions white, watery, and frothy; urine scanty, high coloured, and passed with an effort; menses absent. After her worst symptoms ceased there was still prostration and feeling of numbness in lower extremities. (*Prov. M. J.*, Nov. 18, 1843.)

66. M. Giraud took, by mistake, Sept. 23rd, immediately before breakfast, a dessertspoonful of a solution of 15 grms. of arseniate of soda in 600 grms. of water. General malaise soon came on, with repeated vomitings; body felt shattered all d.; at n. frightful dreams. For 8 d. after he continued to vomit at frequent intervals; then, feeling better, he took a second spoonful. Vomiting set in more violently than ever in 5 m., but ceased after 2 h. Some days later he took a third spoonful. Vomiting did not begin till $\frac{3}{4}$ h. after dose; but from this time it became habitual during or after meals. For the first few d. he had black and fœtid diarrhœa, frequent epistaxis, great præcordial anxiety with pains in epigastrium and colic. Towards end of October he felt his strength failing, found it difficult to keep warm, vomited daily, and from time to time had palpitations. Towards end of November, he remarked in groins and inner surface of thighs red spots not disappearing on pressure. These lasted for months, then became pale and were replaced by a kind of vibices. A milk diet suspended vomitings for a time; but on return to ordinary food they returned, accompanied with tearing pains in stomach. After another lacteal *régime* they finally ceased, March 8th; but there remained an habitual dyspepsia, with constipation, stools consisting of whitish balls, which after contact with air became reddish. (IMBERT-GOURBEYRE, *L'Art Méd.*, l, p. 33.)

67. Mrs. B—, æt. 39, full habit, good health, nervous-sanguine temperament, light hair and blue eyes, was in the fall of 1854 attacked with diphtheria, for which I gave her ars. iod. and belladonna. After

* Comp. Berridge, No. 10.

nearly subduing the disease I was called away on business, and fearing that the lungs might become involved, I left some powders of the iodide, 1_x trituration, of about a grain each, which I ordered her to use in the form of a vapour, but which, through a mistake, she took internally, in the place of some belladonna powders which I had left her. She took them three times a d. for 4 d. under the impression that she was labouring under a relapse of diphtheria. The 1st d. she began taking the drug she said she felt perfectly well, but at about midnight she was aroused from sleep by a heavy, deep-seated bone-pain in region of sacrum with feeling as if it would separate from spine; it then streaked down thighs as far as insertion of sartorius muscle, and seemed confined to bone, though flesh felt dull and heavy, as though sensory nerves were inactive; sometimes pain ran forward from sacrum to groin, and was boring and tingling in its character. Experienced great burning and itching just within vagina, which was not relieved by cold applications; during this time felt remarkable clearness of brain. About 3 a.m. pain left sacrum and appeared in lumbar region, involving space of about one vertebra, with sensation as though it was being crushed to pieces; there was a sense of remarkable lightness from the hips upwards. About this time, began to have pains in her head, which extended from frontal region back to occiput, and down spine as far as first lumbar vertebra—this was one of the most protracted and troublesome symtoms produced. About 6 a.m., feeling very cold and chilly, especially in the extremities, she took a warm infusion of spearmint, after which she fell asleep and remained quiet for ¾ h., then awoke and drank another draught of the tea, after which she slept for ½ h., and on awaking had flushed face, eyes injected, lips and nostrils puffy, with dryness of throat, hoarseness, &c. The skin now became more generally cold, with intensely cold sensation *outside* of stomach and great burning *within*, feeling in abdomen as though collapsed, constricted feeling in vagina; abdominal symptoms became more violent, with feeling as of tenesmus in rectum, which reached as high as sigmoid flexure. About 9 had discharge per anum, with great fear that some of the internal organs would be cast off with the fæces. The pain in head and tenesmus were the ruling symptoms until about 11. She now seemed to be unconscious, or, at least, did not seem to realize her condition; this symptom lasted till about 1 p.m. without any disposition to talk or answer questions; took no notice of her children, or the noise they made. She did not take the powder this morning, but took one at noon; about 1 h. afterwards had an involuntary passage of urine and fæces, or, rather, seemed to be indifferent in regard to it, although she seemed conscious; it was first discovered by the nurse from its intolerable stench. It was of a dark green colour and of a tarry consistency; these were repeated at intervals of about 1 h. for upwards of 15 h. She would inquire after each evacuation if any of the internal structures had been discharged with the stool. Although skin seemed very cold during whole of the time she was under influence of drug, yet it was only superficially so. About 6 p.m. had an attack of hiccough, which lasted, off and on, for an h. or more. About midnight took a large dose of laudanum, which checked discharges until next m.

at 6; then they commenced again and continued at intervals of about 2 h. all d. In e. I was called to see her, and found that she was not at all anxious about her condition; thought she would get well, &c., and took but very little notice of me. I then produced profuse perspiration by artificial means, and kept it up till weakness became apparent, when I gave her some ammonia, and ordered a cup of black tea, which she took with great indifference. I then put her upon constitutional treatment, giving her a number of different remedies as they were indicated during the next few months. There was a pinched, shrivelled appearance of the skin, with great emaciation, which continued for a number of months in spite of all the remedies given her. After about 12 d. from time she stopped taking drug her bowels became constipated, and the tenesmus continued for a period of 3 weeks. Stools for first 5 d. were soft and mushy, and in colour changed from green to black, with an occasional dysenteric stool of bloody mucus. Urine was passed involuntarily during whole time of acute symptoms. There was an eruption which showed itself at times on different parts of the body, beneath the skin and of a dark red or purple colour. Food taken into the stomach seemed heavy, or like a foreign body, and was not properly digested. The patient continued to improve slowly for 5 weeks, with the following train of symptoms present: ungratified thirst, no ability to taste food, indigestion, constipation, weakness, lassitude, with darting pains through cardiac region, &c. Was troubled with severe attacks of sick headache, as often as twice a week; had leucorrhœa, which was white in colour, and very profuse during the whole period, but at the proper menstrual period there was a little sanguineous appearance. This general debility, mental carelessness, and lassitude, lasted for six months or more. (BEEBE, *loc. cit.*)

68. The influence of ars. iod. in the first instance is that of a tonic; the appetite is increased; but after its use has been continued for 10 or 12 d. a degree of pain is experienced at the epigastrium, accompanied with thirst, a dry state of throat, slight fever, and sometimes diarrhœa and tenesmus; the skin also becomes dry, and the urinary secretion is augmented in quantity. If its use be prolonged nervous system is rendered irritable and restlessness supervenes. Never causes salivation. (A. T. THOMPSON, *Lancet*, 1838—39, p. 176.)

69. Dr. A. T. Thompson makes the following remarks on the iod. of ars., which he recommends to be used in doses of $\frac{1}{10}$ gr., and in no greater than $\frac{1}{3}$rd gr. He says: "Its obvious effects are quickness and hardness of the pulse, with slight fulness of lower eyelids; but generally before these symptoms of its influence show themselves the disease has begun to yield. . . . The symptoms which indicate a necessity for reducing the dose are, heat in mouth and fauces, and anxiety of præcordia with pain at epigastrium or griping. If besides these there is tension with an uneasy sensation of stiffness around eyes, and erythema of face and throat, or white tongue with edges and tip of florid hue, and a quick pulse, the use of the medicine should be suspended for some days. If nausea, cough, vertigo, or salivation supervene it should be left off altogether. (ERASMUS WILSON, *Lancet*, 1842—43, ii, 819.)

70. Man, æt. 44, was exposed to arsenical vapours from fusing a mixture of tin and lead with arsenious acid. He soon had extreme dryness of throat, much constriction of fauces, and general uneasiness. He slept awhile, but on waking found his symptoms increased; had uneasiness of stomach, with nausea, occasional vomiting, colicky feeling in bowels, and dyspnœa. These symptoms persisted and increased, and in 3 or 4 d. profuse melæna came on, he vomited blood, and his sputa were tinged by it. On 12th d. Dr. Bird found him with symptoms very similar to those of fever, but without cerebral depression or heaviness; skin very hot; eyes retracted; face very pale, with flush on each cheek; tongue furred, with red streak down middle and redness of tip; pulse throbbing and hard; pain at scrob. cordis; last stool pitch-like, but free from blood. No vomiting for last few d. Post. portion of both lungs found on auscultation to be affected with pneumonia, and lower lobes partially consolidated. On 13th d. the pneumonic sputa appeared. (*Lancet*, 1843—44, i, 98.)

71. TACHENIUS, breathing incautiously the fumes of A., was surprised to find his palate impressed with a sweet, mild, grateful taste, such as he never experienced before. But in ½ h. he was attacked with pain and tightness in stomach, then with general convulsions (?), difficult breathing, an unspeakable sense of heat, bloody and painful micturition, and finally with such an acute colic as contracted his whole body for ½ h. By use of oleaginous drinks he recovered from these alarming symptoms; but during all succeeding winter he had a low hectic fever. (*Hippocrates Chymicus*, ch. 24, p. 213.)

72. Miners, and other workers in A., suffer more or less in their health from the posionous exhalations. The diseases engendered are essentially chronic, but sometimes fatal. The general symptoms are said to consist of dyspepsia, headache, difficult and painful urination, dyspnœa, palpitation, convulsions, paralysis, sometimes dropsy. The local effects are coryza, nasal ulcers, hoarseness, sore throat, red and swollen gums with salivation, and a whitish line along edge of gums produced by lodgment of arsenical dust. The skin where most delicate is apt to be attacked by erythema, and an itching papular eruption. There is a constant and slow fever, with loss of flesh. (STILLÉ, from PATISSIER, *Mal. des Artisans*, p. 20.)

73. Drs. Härting and Hesse, of Schneeberg, have found the majority of cases of death among the miners there due to lympho-sarcoma of the lungs. According to them it is the arsenical dust which causes this; the metal being inhaled in its nearly insoluble combination with cobalt, conveyed undecomposed to the bronchial glands, and there setting up a state of irriration which causes these glands to swell.* (*Vierteljahrschr. f. gerichtl. Med. n. öffentl. Sanitätswesen*, lxxxi, 102, 313.)

74. A woman, æt. 54, was affected at various periods with lancina-

* A lady took ars. for many years for an eruption. Seven months before death had violent attack of neuralgia of shoulder, which afterwards extended to both groins, thorax, and back. This was relieved for a time, but continued with most agonizing severity. Abdomen became enormously tympanitic; paraplegia slowly ensued, and she died. *P.M.* showed general enlargement of thoracic and abdominal glands, many of which had assumed the non-malignant form of melanosis. The reporter considered this disease due to the ars. (GIBB, *Lancet*, 1858, i, 613.)

ting erratic pains referred to the shoulder and nucha, accompanied with fever. She left Vienna and got well. Six months after she returned to her home she was seized with violent fever, lancinating pains in head and shoulders, and subsequently profuse perspirations, followed by disappearance of the fever. The lancinating pains diminished, but she experienced extremely painful sensations of irritation and distraction in head. These returned regularly every other n. and lasted until m., the attack always terminating in abundant sweating. Lancinating pains continued in shoulders, arms, and epigastrium after the subsidence of the attack. There was complete anorexia, with a clean tongue. The room was coloured with arsenical green. The patient was treated with pot. iod. (gr. 2½ ter in die); during this treatment arsenic was found in the urine in such quantity that its presence could be easily shown by Marsh's test. LORINSER, who reports the above and other cases, calls attention to the dyspepsia, the epigastric pain, the peculiar perversions of cutaneous sensibility, and the headache, as being most characteristic of arsenical paper poisoning. (*Wien. M. Wochenschr.*, 1859, Nos. 43, 44.)

75. *a.* A child, æt. 3, had just recovered from diphtheria. Child was sitting on a chair in a listless state, pale, slight colour over cheek-bones, lustrous glistening eyes, palpebral conjunctiva red, and all the appearance of a child which had been crying. The head was on one side, and pain was felt on raising it from a rheumatic affection of the sterno-mastoid. Pain over umbilicus and epigastrium at times; mouth and gums of a preternaturally bright colour, full of saliva as from mercury; very slight ulceration on edge of tongue.

b. At the inquest on the death of the child (3 others had also died) the mother gave the following additional symptoms: weakness, head on one side—as it fell down, could not get it up. Nostrils sore and dark; child rubbed and picked them; eyes watered much; complained of stomach, arms, and legs. The mother had smarting of eyes; daily pain over brows for four months, disappearing in a week after removal of paper; also numbness and kind of cramp in arms and legs, and pain in side. Her husband had pain in chest: after his work he felt overtired; did not sleep so well as before. When stripping the room of the paper the mother felt a heavy, queer sensation in the throat.

c. Post-mortem.—Stomach had several streaks of inflammation therein; bowels slightly inflamed; mesentery congested and inflamed, of a bright vermilion colour; mucous membrane thickened, readily rubbed off. (*Lancet*, 1862, ii, 516.)

76. A young woman had been ill for 10 weeks; had headache, pain over brows; smarting of eyes; defective sight; irritation of nostrils and upper lip; mouth and gums tender; all teeth aching; throat dry; pain at pit of stomach, sometimes very severe; short, dry, hacking cough; breathing short; general tremor; great prostration; loss of appetite. Had not rested well for weeks; symptoms always worse in m., especially the running of eyes and headache. Within these few weeks she had become almost blind; could not see at all without wearing spectacles. On removing the paper she soon recovered. (*Ibid.*)

77. General symptoms observed in 21 cases of poisoning by green wall-pigments :—General ill-health, faintness, loss of appetite, depression, irregularity of bowels, coldness of extremities, restless sleep with unpleasant dreams ; patient appears as if in a consumption ; skin discoloured and becomes pale or of a yellow clay colour, and then, in adults, brownish spots appear on face, and especially on forehead, temples, and cheeks ; sometimes urticaria ; in one case, where there was a tendency to it, ecchymosis ; hair of head falls off, but only in severe cases ; in one case abnormalities of nails ; when there is much feverishness there is absorption of fat, but when there is no pyrexia these deposits are left untouched, or there is even a tendency to grow fat in parts, as in arsenic eaters ; conjunctival catarrh and affections of eyelids are frequent ; mucous membrane of mouth either pale or red and inflamed, with increased flow of saliva, sometimes containing pus ; not unfrequently *chronic inflammation of throat*, dryness, tickling, and hawking up of viscid or purulent sputa, occasionally streaked with blood ; sometimes inflammation of pharyngeal mucous membrane and diphtheritic symptoms, pain in swallowing ; heartburn, sense of weight at stomach, eructation of odourless gases, nausea, vomiting ; appetite unaffected, diminished, or entirely lost ; colicky pains and loud rumblings in intestines ; of the abdominal organs liver is most affected, and sometimes there is slight jaundice ; in one case the internal organs underwent fatty degeneration ; kidneys undergo the same pathological change as liver ; painful urination is characteristic, though not always present ; in 6 cases out of 8 A. was found in urine ; the female sexual organs are thrown into sympathetic irritation ; hoarseness and violent cough, most troublesome at night ; irritability and loss of memory, especially for recent events ; melancholy, and faintings, often intermittent, were notable symptoms ; quiverings of muscles, especially those of hands, face, and tongue, were prominent ; sometimes incomplete paralysis of extremities, preferably the lower ones, but the muscles remained susceptible to electricity ; disturbances of sensation usually slight, consisting of formication, numbness of hands and feet, in some cases diminution of sense of touch ; hearing often impaired ; frequent headache of the most varied situation and character ; sometimes so-called muscular rheumatism ; in mild cases no pyrexia, but in severe cases where more A. has been absorbed, there is fever, often intermittent (even though there may have been no exposure to malaria), speedy prostration of strength, and inflammation of different organs. The chief diagnostic signs of this poisoning are, weakness out of all proportion to the local lesions, cachectic appearance and cold extremities ; brownish discoloration of face ; inflamed eyelids ; disturbances of mobility, especially in lower limbs ; a burning sensation during urination ; intermittent symptoms, and flying rheumatic pains. (KIRCHGÄSSER, *Viert. f. gericht. u. offent. Med.*, ix, 96.)

78. Symptoms from arsenical papers on fourteen persons.—First appeared irritation of mucous membrane, causing diarrhœa and vomiting, with various other symptoms of severe gastric derangement, resulting in permanent indigestion ; also incessant severe cold in head, which in one case lasted for several years without being touched by any remedy ;

ulcerated throat with acute inflammation, resembling diphtheria and quinsy; severe spasmodic cough, spasmodic asthma, bronchitis, and congestion of lungs; soreness of mouth, lips, and tongue, which appeared as if scalded in patches; inflammation of eyes and lids, conjunctivæ being invariably bright red, in one case threatening absolute loss of sight; congestion and torpidity of the liver, with the various symptoms resulting therefrom; and severe bilious and feverish attacks. There was, in short, irritation of every organ. In many cases, if not in all, the heart's action was weakened, and in some palpitation frequently occurred. There were pains in various parts of body, especially across shoulders, down spine and limbs, also in joints, which were often stiff and swollen; scaling of skin and irritating eruptions, relieved only by Turkish baths. The effects on the nervous system were most remarkable, producing a thoroughly shattered condition, great irritability, depression, and tendency to tears, with unusual prostration of strength. These latter symptoms were especially marked in the children, and also in servants who had come to the house in ordinarily good health, and who each became affected by degrees as described. The list also includes giddiness, headache, acute earache, and neuralgia; nose bleeding; frightful dreams; hysterical attacks; faintness; cramps, rigor, and numbness of the limbs; rigid spasms and convulsions. The last symptoms developed in the worst cases were loss of memory and threatenings of paralysis; also spasms with twitchings of body and limbs. The Turkish bath relieved, being used daily, the brain congestions yielding all the more readily when the temperature was *above* 140° F. The inveterate nasal catarrh ceased *at once* when the paper was removed, and *before* using the baths. (*Brit. Med. J.*, 1871, ii, 101, 392.)

79. "Sept. 20th last I was called to a boy and girl, æt. 9 and 10, children of a gentleman lately come into a renovated and enlarged house. I found them suffering from vomiting, tenderness at epigastrium, furred tongue, with well-marked icterus. In a fortnight they had recovered. On Oct. 30th I was summoned to another boy and girl in the family, but a little older. Their symptoms were precisely the same, and recovery soon took place after a week's bed, &c. On Nov. 13th I was again called in to two older sisters, æt. 18 and 16. They, too, presented jaundice, and all the symptoms of the other four, but more acute. Convalescence was established in a fortnight." On examination arsenic was found in large quantity in papers of dining-room and play-room.* (*Ibid.*, June 20th, 1885.)

80. A few weeks since I was consulted by a woman, æt. 40, nurse in a family at Kingston-on-Thames. She told me that soon after coming to live with the family where she was now, about 2½ years since, she became affected with attacks of ague, which have continued ever since. The fits of ague were generally of the quotidian type, but sometimes they became tertian, and she had never been a week without one. All that time she had been subject to almost constant burning in

* A. in wall-papers is not only disseminated as dust, but decomposition takes place, and arseniuretted hydrogen by degrees is produced and diffused through the air (HAMBORG, *Pharm. Journ.*, Aug., 1874).

epigastrium and frequent attacks of faintness, often nearly amounting to syncope. Diarrhœa, pain in bowels, sickness and vomiting, were often present. Before coming to Kingston she had some spots of lepra on arms; since then eruption has very much increased, and has extended to face. The room she has slept in all this time is papered with an arsenical paper. She never resided in an aguish district, nor knew what ague was before sleeping in this room, and Kingston-on-Thames is not supposed to be an aguish place. (DUDGEON, *Brit. Journ. of Hom.*, xx, 204. In *Monthly Hom. Rev.*, xxv, 446, Dr. Tuthill Massy records a case of supposed "jungle fever," occurring in a perfectly non-malarious district, in which bedroom wall-paper was found highly impregnated with arsenite of copper. At p. 355 of same vol. Dr. Clarke mentions an instance in which all the inmates of a house freely papered with A. had a feverish attack every 6 weeks.)

81. A gentleman was lodged for the n. in a room which he found (next m.) papered with a brilliant green, and which proved to be highly arsenical. A few m. after getting into bed a coldness seized him, and increased to chattering of teeth in spite of extra covering. Endeavouring to rise to get more he found he had not strength to move legs and get out. Effort produced violent pain in bowels, as if someone were twisting them as a towel is wrung out. This was followed by a dreadful sickness; and during paroxysm he thinks he must have fainted, for he remembers no more of what passed. On first getting out of bed next m. he could hardly stand, and staggered about like a drunken man while dressing. On emerging into open air, however, all unpleasant sensations vanished as if by magic. (JABEZ HOGG, *Brit. Med. Journ.*, June 14th, 1879. Mr. Hogg considers that arseniuretted hydrogen must have been at work here, evolved by the active heating of the room which was adopted in order to render the visitor comfortable.)

82. Arsenious acid was subcutaneously injected for psoriasis and chronic eczema, in doses of gr. $\frac{1}{20}$ to $\frac{2}{5}$. It caused the following symptoms: pulse more frequent (greatest frequency 108); temp. raised in one case to 101·8°; appetite lessened; thirst increased; diuresis; feeling of constriction of thorax; nervousness; headache; dizziness; nervous cough; tickling in larynx; injection of conjunctivæ. All these, except the increased frequency of pulse, ceased on lessening or stopping dose in 1—3 d. (*Archiv. f. Derm. u. Syph.*, 1869, iii, 362.)

III. *Experiments on animals.*—1. Binz and Schulz have recently shown that if arsenic acid is digested for several h. at a temp. of 101° F. with fresh fibrin, brain, white of egg, or pancreas, it appears in the dialysate as arsenious acid; and after administering arsenious acid to animals they found arsenic acid in the watery contents of the intestines, and, *vice versâ*, arsenious after giving arsenic acid. These processes of oxidation and reduction, according to them, take place in the glands, the protoplasma of the nerve-centres, and in all other cells in which the conditions necessary for the occurrence of such actions were found. In consequence of this constant transfer of nascent oxygen within the molecules of the living albumen, the living cells burn more actively than during ordinary tissue-changes, and upon this local increased

combustion depend all the manifestations of the action of A. (LEWIN, *op. cit.*, sub voce.)

2. In animals killed by A., the blood is usually found fluid in heart and vessels after death, but otherwise all the morbid appearances met with on dissection are confined to the stomach and intestines. In many cases where death takes place there is only a very slight degree of inflammation of the alimentary canal; in other cases the inflammation is considerable. It is greatest in stomach and small intestines, but usually extends over the whole intestine. I have never observed inflammation of the œsophagus. It is greater in degree and more speedy in taking place when arsenic is placed in a wound than when it is taken into the stomach. The inflamed parts are in general universally red, at other times they are red only in spots. The principal vessels leading to the stomach and intestines are much dilated and turgid with blood; but the inflammation is usually confined to the mucous membrane of these viscera, which assumes a florid red colour, becomes soft and pulpy, and is separable without much difficulty from the cellular coat, the latter preserving its natural appearance. In some instances, there are small spots of extravasated blood on the inner surface of the mucous membrane, or immediately beneath it, and this occurs independently of vomiting. I have never in any of my experiments found ulceration or sloughing of the stomach or intestine. (BRODIE, *Physiological Researches*, p. 86. Boehm's researches (*Arch. f. exp. Path.*, ii, 89) confirm those of Brodie; but he describes a thick, yellowish, tenacious exudation, formed entirely of white corpuscles and constituting a false membrane, under which the mucous membrane is found dotted with ecchymoses, and for the most part destitute of epithelium. See iii, 8.)

3. Mr. JAMES BLAKE found injection into veins of a solution containing 15 grs. of ars. of potash cause speedy and sudden cessation of heart's action. On opening thorax l. side of heart was found insensible to galvanism and full of scarlet blood. Similar results followed injection of same quantity of iodide. (*Ed. Med. and Surg. Journ.*, xli, 335—36.)

4. In an experiment by MM. Flander and Denger, 3 decigrammes of arsenious acid were introduced under the skin of a sheep; symptoms of poisoning very soon manifested themselves, and in 5 d. the animal died. Autopsy showed pleuro-pneumonia with effusion of r. side. (*Ann. d'Hygiène Publ.*, April, 1843, p. 469.)

5. Arsenious and arsenic acids were given to animals in small doses, so that they lived from 3 to 6 d. Liver was always found considerably enlarged and very fatty. Fat was not diffused through substance of organ. In each acinus three zones were distinguishable,—an external, pale and red; a middle, dull yellow; a central zone, of comparatively trifling extent, and appearing as a reddish point. Microscopic examination showed that it was in middle zone that cells were enlarged and filled with fat-globules of various size. Kidneys were much enlarged, tubuli completely filled with fat-globules, and wherever epithelium still existed its cells also were full of similar globules. Muscular fibres of heart and diaphragm had also undergone a fatty change. Epithelial

cells lining glands of mucous membrane were often enlarged, and sometimes contained a quantity of fat. When large doses of arsenious acid were given to rabbits, so as to kill them in 20—28 h., liver was found fatty, but fat was diffused through substance of organ, so that change was not so definite as in more chronic cases. (SAIKOWSKY, quoted in N. Syd. Soc.'s *Year-book* for 1867 from Virchow's *Archiv*, xxxiv, 73. GIÉS found same, with changes in bones analogous to those of chronic phosphoric poisoning. In long bones was a special thick layer of bone between epiphysis and shaft; shaft also was thicker, and in bones such as ribs and vertebræ structure was more dense and harder to divide than in normal animals; the new structure was true bone, but bone corpuscles and Haversian canals were smaller than average. If doses were increased beyond a certain point resorption of bone occurred, and symptoms of poisoning set in. Giés does not accept the view of increased stimulus being given to bone formation, but rather that of diminution of tissue change, and hence increased deposit and insufficient removal of organic particles.* PHILLIPS.)

6. *a.* MM. Caillot de Poncy and Ch. Livon have lately experimented on chronic arsenical poisoning. The effect of the addition of small quantities of A. to the diet of cats was not at first to cause any disturbance in the general health; indeed, they ate more, became fat, and seemed generally to be in exceedingly good health. After a time, however, they began to lose flesh, became affected with diarrhœa, lost appetite, became languid, and finally died in a state of anæmia and emaciation. At the necropsy all the muscles, including the heart, were extremely pale; liver, lungs, and kidneys presented all the naked-eye signs of fatty degeneration; the mesenteric glands also were swollen, and showed same change—a lesion not previously observed.

b. Cornil and Brault found, in acute poisoning, the pulmonary capillaries dilated and distended with blood, and the endothelial layers invaded by large fatty granulations. Hæmorrhages were seen at certain points, and many alveoli were filled by degenerated cells, giving rise to the naked-eye appearance of pale islets. The mesenteric glands appeared as large yellowish-white masses of caseous aspect. The microscope showed that the peripheral parts of the glands were invaded by fatty degeneration, which was not limited to the follicles. (*Brit. Journ. of Hom.*, xlii, 90.)

7. *a.* Considerable doses of A. given for a length of time produce fatty degeneration of the liver and other organs, and cause the glycogen to disappear from the liver, so that puncture of the fourth ventricle no longer produces glycosuria.

b. Minute doses appear to increase rapidity of pulse; larger doses diminish pulse and blood-pressure. In frogs the heart is slowed, and finally stands still in diastole. This stoppage of the heart appears to be due to paralysis of the motor ganglia, as the muscular substance will still continue to contract upon direct irritation. In warm-blooded animals it appears to prolong the irritability of the heart so that it will

* "I conclude that although some contradiction exists on this point between good authorities, yet the balance of recent evidence points to lessened excretion and consequent lessened tissue-change, as an effect of A." (PHILLIPS).

still continue to beat for many h. after the death of the animal. According to Rüntzer, this is due to retardation of the vital processes in the mammalian heart, so that it comes to resemble that of a cold-blooded animal. A. diminishes the blood pressure from the beginning. This appears to be due partly to diminished activity of the heart, but chiefly to paralysis of the splanchnics allowing the abdominal vessels to dilate. (BRUNTON, *Pharmacology* (1885), sub voce.)

8. DELAFOND has noted the almost immediate production (in less than 2 h.) of false membranes, sometimes so compact that they may be removed in one piece, like a hollow cylinder, on internal surface of small intestines in horses poisoned by A. (*Amer. Journ. of Med. Sc.*, N.S., vi, 495. Lolliot noted a similar occurrence in one only of the smaller animals poisoned by him. See his *Étude Physiologique de l'Ars.*, 1868.)

9. Two cats lapped up milk vomited by a patient who had taken a large dose of A. with fatal results. One died in great suffering the following d.; the other was very sick, refused all food for 7 d., and became thoroughly emaciated. On 9th d. all hair came off save that on face; surface continued quite bare for 2 months; hair then began to grow, and in 9 months cat was covered with a beautiful silky fur, but only half the length of its former coat. (*Brit. Med. Journ.*, 1856, p. 17.)

10. *a.* In frogs, according to Sklarek, in about 5 m. after poisoning by arsenic acid, the animal lies flat, with extended extremities and without breathing. Pinching, or other irritation, excites neither reflex action nor voluntary motion, though much voluntary power remains, since, on lifting the animal, or withdrawing a leg, or turning the frog on its back, it displays active voluntary movements. In a short time, however, the animal becomes completely paralysed. A., therefore, paralyses first sensation and reflex action, and some time afterwards voluntary power. In cold weather I find that sensation and reflex action persist as long as, or longer than, voluntary power. Sklarek attributes the general paralysis to the action of A. on the cord.* My own experiments confirm this statement; but they also show that A. is a paralyser of the motor and sensory nerves, and of the muscles; in fact, it is a protoplasmic poison, destroying the functional activity, first of the central nervous system, next of the nerves, and last of the muscles.

b. In our experiments published in the *Journ. of Physiology* for 1878, Dr. Murrell and I found that A., like tart. emetic, produced desquamation in frogs. After poisoning with only $\frac{1}{10000}$th of the weight of the animal, desquamation begins on the trunk in about 5 h., on the legs in about 8 h. The cuticle strips off in large pieces, so readily that mere handling of the animal detaches it. Does A. affect all epithelial structures in this way? I think so. Miss Nunn has shown that it so affects the cornea; and after acute poisoning the bowels are found filled with a rice-water fluid consisting of epithelial flakes, and the epithelial cells are choked with granules, some being in a state of advanced fatty degeneration; and these changes occur

* Vulpian has been able to ascertain, in a dog which he had made to swallow considerable doses of A., the existence of an acute myelitis. (*L'Art. Méd.*, xliii, 49.)

even when the poison is injected into a vein. (RINGER, *op. cit.*, sub voce.)

11. An examination of a series of sections taken from different parts of the body at different intervals after the (hypodermic) injection of the poison shows that the general effect of arsenious acid on the epidermis is to cause a degeneration and partial solution of the protoplasm of the cells, whereby (1) the whole epidermis becomes loosened from the subjacent derm; (2) the cells of the Malpighian become incoherent so that the whole layer collapses, and its well-known architectural features become obscured; and (3) the intermediate layer separates from the Malpighian layer below, and at times from the corneous layer above. The corneous and intermediate layers are thus desquamated, sometimes separately, sometimes—and perhaps most frequently—together. In no case, even in those of most extreme or most lengthened poisoning, have I ever seen the Malpighian layer actually cast off during life; it always remains attached (although loosely) to the derm, in a manner I shall presently describe.

It is obvious from the foregoing account that the A. first attacks the lowermost or innermost portion of the epiderm, that its action advances from the derm outwards. . . . I have never observed any excess of the fluids excreted by the skin generally as the result of arsenical poisoning, and it is impossible to explain the changes described above as merely or even chiefly due to an excessive discharge of fluids from the cutaneous blood-vessels or lymphatics loosening and separating the cells. All the facts go to prove that the changes are the result of the A. acting directly on the epidermic cell, which, with its diminished cell-substance and shrunken muscles, presents a striking analogy with the secreting cells of a salivary gland which has been stimulated to exhaustion; and I shall probably not go far wrong in regarding the changes of the former as the consequences of an action of the poison not wholly unlike an excessive, in fact a lethal, stimulation, by which the destructive changes of the protoplasm are hurried on beyond the reparative power of the constructive stages. The stimulation is obviously of a peculiar kind. One marked effect of the stimulation of undifferentiated protoplasm is to forward and accelerate processes of growth. I have looked diligently for indications, such as double nuclei, &c., of multiplications in the epidermic cells, but always in vain. (NUNN, *Journ. of Physiology*, 1878.)

12. On last d. of Sept. commenced trials. To four cats 2 months old, and two 3 months old, were given dissolved in water in m. $\frac{1}{8}$ gr. kal. ars., and this continued every d. until 20th Nov.; from that time each cat got every d. $\frac{1}{4}$ gr. By the 8th Dec. the four youngest cats were dead. Beyond increased indifference to the drug dose and cessation of former struggling, greater thirst, licking mouth and urethral orifice, lying close together and unwillingness to move about, a peculiar quietness and staring look on the last 3 or 4 d. before death, nothing remarkable was observed. The two other cats got now irregularly every 2 or 3 d. each $\frac{1}{2}$ gr. till 12th Sept. and 2nd Aug. respectively.

Results of *P.M.* made on the 4-year old [$\frac{1}{4}$ year ?] cat.

a. Female, black and white striped cat, besides being well nourished

showed an uncommon quantity of fat under skin, about heart and kidneys, in omentum and mesentery. Lungs normally red, completely inflated, emphysema the size of a pea in 2 places of lower lobe of l. lung. Pericardial fluid of normal quantity; heart very hard to feeling, the shape of a rounded cone; considerable hypertrophy of l. ventricle, which was much firmer and redder than r., which looked like a mere appendage of l., r. ventricle contained cherry red, thin fluid blood and a thick fibroid clot, many columnæ carneæ extending far into pulmonary artery. Stomach distended by gas; just before pyloric orifice a circumscribed, dark blue, gangrenous-looking spot the size of a sixpence —the commencement of a perforating ulcer; round about it the signs of chronic catarrh of stomach. Peritoneal covering of small intestines injected in spots; ileum almost everywhere strongly contracted. In bladder little greenish-yellow, faintly smelling urine, which contained a great quantity of albumen, a good many fat-corpuscles, and in its sediment glandular epithelia of the tubuli uriniferi, fibrin cylinders, and blood-corpuscles; reaction neutral, the quantity of urea, of uric acid, and especially of sod. chl., very much diminished. The kidneys about twice the normal size, very full of blood, especially their cortical substance which is brownish red and tender, and much increased in diameter; from the cut surface exudes a viscid red fluid; the pyramids hyperæmic, reddened in stripes, the glomeruli very full of blood. Bellini's tubules filled with fibrinous coagula mingled here and there with blood-corpuscles. (Commencement of 2nd stage of Bright's disease.)

b. Grey and white striped male cat. The subcutaneous tissue contains much less fat than that of No. 1. Pleural sacs empty, l. lung normal, upper lobe of r. lung almost throughout hepatised, when cut into exuding bloody frothy fluid (pneumonia serosa). In pericardium double the normal quantity of serum; l. ventricle dilated and hypertrophied, muscular substance pale. In stomach, the m.m. swollen up in ridges, like a number of tapeworms; liver discoloured, containing much thin dark blood, unequally hyperæmic as in commencing putridity, gall-bladder full of blackish-green fluid bile, the several coils of bowel stuck together and to abdominal walls by means of slightly plastic thready exudations; cæcum completely united with the subjacent ileum by large masses of exudation; m.m. of head of cæcum near vermiform process, on a spot the size of a hazel nut, bluish black, gangrenously inflamed. Urine contained fibrin cylinders, fat-corpuscles, little albumen, urates; kidneys very considerably swollen, but less hyperæmic than in the first cat; the capsule easily removed; the cortical substance yellow, friable; the fibrinous exudation permeated by fat-corpuscles, still more frequently washed out of the tubuli, the latter to a great extent with altered epithelial covering; the cells and epithelia are larger, filled with fat and granules. (2nd stage of Bright's disease.)

c. Black, female cat; thin, undeveloped; the eyelids on both sides fast closed for the last week; on forcibly opening them there gushed out a quantity of whitish yellow thick pus; the conjunctiva was injected and swollen, no pustules, no ulceration of conjunctiva or

cornea; lens of both eyes hard and opaque. The l. ventricle of the heart showed commencing hypertrophy. Intestines normal; the kidneys were enlarged, somewhat harder, with shiny surface; the pyramids contained many tubuli filled with fibrin. (End of 1st stage of Bright's disease.)

d. Brown and yellow striped female cat. The centre cartilage and alæ nasi covered with an adherent, viscid, fœtid, ozæna-like discharge, as also the Schneiderian m.m.; the cartilages of the alæ nasi necrosed, thin almost to perforation, the m.m. of l. nostril especially dissolved into an ichorous mass. The r. eye has no pus on its conjunctiva, but its lens is quite opaque. The m.m. of larynx on r. side injected, dark red and swollen, bronchial tubes and r. lung normal; in centre of upper lobe a hepatized spot the size of a shilling, and in lower lobe hepatization to within 1″ of anterior border; in upper lobe bloody serum exudes when cut into. Pericardium contains ½ drachm of fluid; l. ventricle hypertrophied, head projecting like a ball from the highly developed ventricular septum. Liver, pancreas and spleen normal. Stomach distended by gas, towards the cardiac orifice covered with shining black, Indian-ink looking, adherent pigment; the pyloric part, the duodenum, and the whole of the remainder of the alimentary tract very constricted, empty; the ileum congested externally on its m.m., contained some worms; the folds of the m.m. of the colon very swollen; at the lower end of the cæcum there was a deposit of ochre-coloured pigment the size of a bean, resembling the metamorphosed blood in an apoplectic deposit. In the bladder a little bright yellow urine, which contained fat-corpuscles, crystals of uric acid, some crystals of oxalate, and epithelia of Bellini's tubules. The kidneys, whose capsule was easily detached, showed many epithelia in the process of becoming fatty, other tubules without epithelium, but most of the tubuli very dilated so that granulations appeared on the surface of the kidneys.

e. Results of *P.M.* of the two older cats poisoned with arsenic. Dark grey female cat. Great increase of size of l. ventricle of heart, the walls of which were three times as thick as normal, rigid, and dark red. Kidneys soft, rather anæmic, when cut into showing yellow stripes and fat on the knife blade, the tubuli very full of oily fluid from the fatty degeneration of their epithelial lining.

f. Light grey female cat, 1 year old. Hypertrophy of l. ventricle especially noticeable in the papillar muscles (colum. carn.?). Blood very fluid, like cherry water, poor in solid constituents. Great accumulation of fat in omentum and mesentery; liver very large, hardish, pale, with ununiform hyperæmia (nutmeg liver), spleen not enlarged, but tough, granular, cherry-red, no alteration in bowels. A little greenish-yellow urine in bladder, urine contained a little albumen, many fat-corpuscles, some crystals of oxalate of lime, almost no salts and little urea, pavement epithelium from bladder and beautiful fibrinous cylinders, externally studded with fat and granules. The kidneys, pretty hard and dark, double the normal size, showed masses of fibrin round single tubuli; red fluid escaped when they were cut into, to the surface of which oily patches rose, and fatty degeneration of the epithelia of the tubules of Bellini. (QUAGLIO, *Allg. hom. Zeit.*, lv, 85.)

13. *a.* Dr. A. T. THOMSON experimented on dogs with ars. iod. Simply introduced into stomach, 4—20 grs. caused speedy vomiting, and no other bad symptoms. When œsophagus was tied, ʒj caused violent efforts to vomit; evident pain at stomach; fluid stools, chiefly of mucus; rapid, sharp, irregular pulse; spasmodic twitchings in extremities; general tremor, evident failure of muscular power in limbs. In 20 m., dog fell on side; l. fore and r. hind leg twitched continually, while other two limbs were at rest; later, these and lower jaw, and in 5 m. more whole body, were involved in the convulsive movement. Respiration became slow and deep; tonic spasm affected intercostal muscles, and emprosthotonos supervened. Paralysis now appeared in limbs first affected by twitchings, later in others. Sensibility, unimpaired up to this time, was lost (save at muzzle) in 1¾ h. In 2½ h. the dog was dead. *P.M.* Lining membrane of stomach intensely inflamed,—this process extending upwards to œsophagus, downwards as far as ileum, and taking a fresh start in rectum. Lungs collapsed, but not inflamed; both sides of heart turgid with coagulated blood.

b. Injected (ʒss) into abdomen, vomiting came on in 10 m.; a few seconds before death, violent spasmodic twitchings affected back. *P.M.* Peritoneum highly inflamed; lungs greatly congested and red; r. heart turgid with blood, l. empty.

c. Injected (ʒss) subcutaneously into r. thorax, in 5 m. animal fell on side, and had violent tetanic convulsions; breathing extremely slow and altogether abdominal. In 10 m. heart's action still slower and intermittent; in 11 m. forelegs in violent movement, and whole body in tetanic spasm; in 15 m. death. *P.M.* Lungs collapsed, and heart and diaphragm insensible to stimuli; stomach much inflamed and thickened; duodenum slightly so. (*Lancet*, 1838—39, i, 176.)

14. Five grs. of arsenite of iron were given to a full-grown rabbit at 10 a.m. At 6 p.m. it became inactive and refused food. It continued in this state for 2 h., when it made violent muscular exertions, and was evidently gasping for breath, while it occasionally uttered a loud tracheal rattle. It died in a very short time. Larynx and trachea, as far as bifurcation of latter, much inflamed; lining membrane covered with a considerable quantity of mucus. R. lung morbidly red and less crepitant than natural; venous system gorged with coagulated blood; gastric mucous membrane covered with a layer of mucus, so solid as to adhere and peel off in parts with contents of stomach. Stomach much inflamed, especially about cardiac end, at which part there was some submucous extravasation. A second experiment produced similar results, *minus* those of the respiratory organs. (BRETT, *Lond. Med. Gaz.*, xv, 220.)

15. Orfila introduced 50—60 grs. of orpiment (arsenious sesquisulphide, $As_2 S_3$) and of realgar (arsenious sulphide, $As_2 S_2$) into cellular tissue of dogs. In all cases death ensued in about 2 d., with signs of gastro-intestinal inflammation. In one dog there was endocardial ecchymosis, and in another redness of lungs. (*Journ. de Chimie*, April, 1826.)

16. Wöhler and Frerichs gave 3 grms. of pure arseniate of lime (calcarea arsenica) to a full-grown dog. At first it remained quiet, and after 2 h. showed no distinct symptoms of illness; next m. it was dead.

Very liquid fæces had passed off. Stomach contained about 20 grms. of a mucous, faintly-acid liquid, coloured yellow by bile, with numerous strongly-injected spots, and here and there ecchymoses of size of lentil. Mucous membrane reddened through whole intestinal tract, but nowhere the seat of destructive inflammation. (*Chem. Gazette*, vi, 228.)

Arsenicum hydrogenisatum. Arsenious trihydride, arseniuretted hydrogen.

I. *Provings.*—1. HERING. [In his *Guiding Symptoms*, vol. ii, Dr. Hering has published the results of a proving of this gas, which he speaks of having made, with five associates, in 1847. The mode of experimentation is not mentioned.* Save in the case of himself and one other ("F. K.") very scanty results seem to have been obtained; and even with those two no really characteristic effects appear which have not been observed in cases of poisoning. Accordingly, since arseniuretted hydrogen is unlikely to be used in practice save—as in Dr. Drysdale's hands—for conditions such as cholera, answering to its toxic influence, we have thought it sufficient to give a few observations of poisoning by the gas, referring the student desirous of more minutiæ to Dr. Hering's work.—EDS.]

II. *Poisonings.*—1. In 1815, Gehlen inhaled a small quantity. In 1 h. he was seized with continued vomiting, accompanied by shiverings and great weakness. The symptoms continued to increase till the 9th d., when death supervened amid intolerable sufferings. (ORFILA, *op. cit.*, sub voce.)

2. Schindler, in 3 h. after inhaling half a cubic inch, became affected with giddiness on mounting stairs, and soon after experienced sensation of discomfort and pressure in renal region, augmenting rapidly, and extending over back up to shoulders, without, however, becoming severe. At same time, general shivering, pains in knee-joints, and coldness in extremities. On undressing about 10 p.m., shivering was so intense that he does not remember having had anything like it; at same time, severe pains came on in arms and elbows, similar to those in knees. The symptoms now increased in an alarming manner. Superior extremities up to middle of arms, lower up to knees, nose, eyebrows, were as dead, the feeling of life left them; absence of pulse, but power of locomotion remained; then at short intervals violent and tearing pains supervened in region of stomach, and continuous spasmodic eructations with emissions of a considerable quantity of inodorous wind, without any relief from the abdominal pains, which caused the sufferer to groan. He soon after had two vomitings with such intense colic that he is unable to describe in words its violence. He then thought he was near dying, without hope of improvement. The vomitings consisted of a yellowish-green mucus, and were very bitter to taste. That of which he complained most was a violent pain in renal region, which was continuous, and accompanied

* "My experiments with the ars. hydr. have shown that the millionth of this gas, taken by inhalation, caused a dangerous illness, lasting several weeks." So Hering writes in Metcalf's *Homœopathic Provings*, p. 222. He probably refers to the symptoms of "F. K."—EDS.

with urging to urinate; urine was of dark colour, blackish red; it was quite pure blood, which formed clots in the vessel. At same time, patient felt burning heat in abdomen, with coldness of extremities. In a few hours, his looks had quite changed: skin of whole body had become dark brown; eyes, with yellowish tinge, were downcast, sunken in the orbits and encircled with a large blue ring. Face was drawn, expressing pain. Patient hardly recognisable. Had no sleep that night. Before vomiting, he had taken a little tea; later on, some warm drinks to induce perspiration. These had the effect of bringing back to the dead parts the feeling of life, preceded by very severe tingling, especially at nose, which was seat of violent sneezing, and which was so painfully cold that it was necessary to apply warm linen to it. All these symptoms lasted with same intensity throughout next d.: urine was still like thick blood, but formed no more clots, although renal pains were just as violent. All the hair on the dead parts had become white as snow; the white eyebrows showed sharply on brown skin. Thirst was severe: patient drank much decoction of barley and other demulcents; he also took a solution of sulphate of magnesia with a few drops of tincture of opium. The next d. (3rd) abdominal pains continued intermittently, but less violent. Vomiting only once, less convulsive and less painful than before. Vomited matter consisted of mucus and bile. Renal pains less severe; urine clearer, though still bloody. Eructations had lessened, leaving patient often ¼ h. peace, but very tiring hiccup had come on, which lasted continuously. Had emission of much flatulence, which brought on stool. Blister at pit of stomach drew blood of a dull red hue. Sleep was quite absent: patient was in such a state of mental excitement that he talked almost incessantly. Weakness considerable; he could, however, stand straight without help and walk a few steps. Had no longer fear of death, although those about him had little hope. On 4th d., same state, though slightly better. 5th d., colour of face was only darkish yellow. Distorted features, showing severe internal sufferings. Urine tinged with blood, colic round navel, recurring at long intervals; intermittent hiccup, lasting an h.; eructations less frequent; several stools. Diluents, mucilaginous drinks. 6th d., vague sensation, very trying, as if he had a stone in belly; patient said constantly that his belly had become like a stone. Sulphate of magnesia did not drive away this sensation nor the eructations. Soon patient wished for something solid, and ate a little rice with good appetite. Urine no longer bloody. 7th d., is better. Face has become white; appearance good. Eyebrows are beginning to get to natural dark colour. No more colic; eructations get less frequent. Has severe tingling in feet and hands, and transient dartings in arms and legs. Towards e., back pains of first days return less violently, but almost unbearable. Great weakness; tendency to sleep, but sleep not calm, being broken at least noise. During next n. he had feeling of pressure and giddiness in head, with tearing sensation. Cold fomentations all n.; pain ceased towards m. 8th d., is better. Slight pressure in abdomen; dorsal pains more violent in e., unbearable during n.; complains bitterly; relieved in sitting posture, but cannot remain so long, owing

to weakness. Friction, application of heat is of no avail. All next d. violent pains. E., better after hot-milk fomentations. He goes to sleep, and next d. is decidedly better. From this moment, his state gets more and more bearable. Strength returns, appetite also, and sleep is refreshing; convalescence, however, is slow, and he is only well again after 7 weeks. During third week, a fresh arsenical effect was noticed. The whole foreskin and glans became covered with purulent vesicles, which were followed by small circular and flattened ulcerations. The patient counted as many as sixty-five on the external part of the foreskin: they took 10 or 12 d. to heal. There were no symptoms left of this serious case of poisoning, and the patient regained his former health. (*L'Art Médical*, xlviii, 323.)

3. B—, æt. 22, employed in a manufactory of chemicals, busied himself with experiments relating to the colouring matter of aniline. In one of these experiments, he produced a pretty large quantity of arsen. hydrogen, which mixed with the air of the laboratory (it was 7 a.m.). About 1 h. afterwards, B— felt a rather severe headache which obliged him to open the window for a short time. He afterwards went on with his work for about 2 h. At 10.30, he took a meal without noticing anything particular. An h. after, headache increased; pains began at epigastrium, and then vomiting of food came on. Patient had himself carried to the hospital. On the way he vomited food three times. On arrival, these were his symptoms: Pale face, bloodless lips, difficulty of walking, very intense frontal headache, severe spontaneous pain in lumbar region; feeling of tightness at base of chest, quickened breathing; no cough, no râles on auscultation, normal resonance; keen thirst; no abdominal pain *per se*, or on pressure. Cold extremities. No disturbance of sensorium. Treatment: Mustard plasters; frictions with balsam of Fioraventi; hot-water bottles; diuretic wine; ordinary decoction containining 16 grms. per litre of acetate of ammonia; purgative enema. In about ½ h. patient becomes warm, a slight moisture covers whole body; breathing gets easier. Patient still complains, however, of bruised feeling generally, and especially of lumbar pains. Motor power seems unaltered. Pulse 110, pretty full and regular. Liver painful to palpation. Towards 5, patient passes two fœtid and abundant stools; some time after, emission without pain of about 220 grms. of red urine, in which not a single globule of blood is found on microscopical examination. Greenish vomiting brought on by slightest quantity of drink. Towards 10.30, headache more severe, and face has more animated expression; injected conjunctivæ. Pulse strong and quick. Embarrassed speech, answers slowly. After being bled to extent of 500 grms., an almost immediate amelioration followed. Headache decreases, as also lumbar pain. Breathing 20, pulse 95. Vomiting, however, continues, and no drink can be retained. At 1 a.m. M. Piorry was called, and found him in this state: Face reddened, skin hot, pulse 100, regular, pretty full; intellect clear, answers rational. Vomiting has ceased. M. Piorry prescribes drink in large quantities and repeated injections into rectum. A fresh purgative enema at about 3, then a bath. Patient feels a little better after it, though still very tired. Next d. face is of an earthy yellow, skin dry, pulse 104;

tongue dry, great thirst; stupid look; there is posterior pulmonary congestion; patient has not urinated. 3rd d., patient is in a state of drowsiness and apathy; conjunctivæ are again injected; urine notably diminished in quantity, and still reddish. 5th d., after a seeming amelioration of short duration, general state gets much worse. Urine suppressed again; tongue and lips covered with a fuliginous coating; skin is of bronze colour; pulse becomes imperceptible, breathing faster and embarrassed; intellect gives way. Death took place that e. Autopsy revealed only congestion of liver, without alteration of hepatic cells, softening of spleen, and enlargement of kidneys with very marked injection of the whole organ, especially in tubular substance, and granular state of cells of both divisions. (OLLIVIER, *Gaz. des Hôpitaux*, 1863.)

4. Four Italians were engaged in the manufacture of balloons filled with hydrogen, and for this they used an apparatus with very badly closing stoppers. July 16th, 1877, after having worked in a small room for 5 h., they all four in e. became very weak, and had trembling of limbs, vertigo, headache, nausea, and vomiting. Next m. there was added to this hæmoglobinuria and jaundice. They were taken to Altona, where they were admitted to hospital on 18th in m. Diagnosis of poisoning with arsen. hydrogen was soon fixed upon, by the aid of chemical analysis of zinc employed in manufacture of hydrogen. We cannot here reproduce the separate cases of the four patients; suffice it to relate the general symptoms, and the autopsy of one of them who died. Violent vomitings were the first of the serious symptoms, which manifested themselves in a few h., and lasted more or less time. Anxiety increased progressively, as also the feeling of a serious illness. The rapid annihilation of numbers of red globules of blood by the inhaled gas, and the consequent retention of carbonic acid, were made manifest by progressive dyspnœa and mortal anguish. Breathing anxious, rapid, groaning. Respiration 40 per minute; on 3rd d. pulse increased from 100 to 130; there was dysuria and hæmaturia. Arsenic was found in urine; evacuation by kidneys of disorganised blood-cells lasted only 3 d. in those who recovered; it lasted 10 d. in the one who died; it was accompanied by an abundant desquamation of the epithelium of the renal tubuli, and by a small proportion of albumen and hæmoglobuline in the urine. There was also a little intestinal hæmorrhage. Colour of skin changed with the changes in the blood; it was at first of a deep yellow, pseudo-jaundiced, later of a greyish yellow, then cadaverous; there was at same time violent itching; all the patients had increase of biliary secretion. The abundant vomited matters were strongly green in colour; stools were largely composed of bile; spleen and liver were diminished in size at first, later hypertrophied; temperature raised in e.; uric acid found in urine during convalescence. First three patients left hospital 11th, 15th, and 19th d. respectively. The last died July 26th, without previous drowsiness, from anæmia, which showed itself during last days by a systolic murmur at apex; from retention of poison in body through stoppage of urinary secretion; from fatty degeneration also and paralysis of heart. Towards the end there was mortal anguish with violent pain in region of liver, coldness

of extremities, and urticaria. Autopsy: corpse greenish yellow; urticaria still recognisable on skin of abdomen. It is discoloured, and has several cadaverous spots. Rigidity of corpse very marked. Colour of muscles normal. Blood of large vesssels of neck is thin, liquid, and of dirty cherry colour. In the two pleuræ some tablespoonfuls of serous fluid, slightly sanguinolent. Same fluid in pericardium, 50 to 60 grms. Heart very soft; muscle of a pale red colour. In r. ventricle, a little clear and liquid blood. L. one empty. Blackish blood in small quantity in r. auricle; some fibrinous clots adhering to orifice of vena cava; a little blood and fibrine in l. auricle; endocardium pale, valves normal, acting well. Œdema of mucous membrane of epiglottis, and especially of ary-epiglottic ligaments. Frothy liquid in trachea, same in bronchi. Lungs slate coloured, pretty numerous red ecchymoses under pleura, especially behind inferior lobes. Lung tissue gorged with blood, but permeable to air throughout. A little fluid blood in pulmonary vessels. Spleen large, 16 centimetres long, 10 broad; surface coloured like dark lilac. Little blood oozes on incision. Corpuscles of Malpighi are clearly visible to naked eye. Size of liver normal; of a pale brown colour; several small subserous ecchymoses; in cutting into vessels a little liquid blood flows out. Gall-bladder is gorged with a liquid as thick as tar, of a dark green colour. Kidneys are of normal size. On incision they show a dark colour; they contain relatively a good deal of thin blood, which is of a dull red. Capsules are adherent; pelves are of a dirty red colour. On cutting into pyramids, the naked eye perceives red and detached stripes. On microscopical examination, the greater part of tubuli of pyramids and of cortical substance are gorged with red blood-corpuscles, which is not the case with the glomeruli. Stomach empty; mucous membrane of a black slate colour, covered with a greenish-brown mucus. Exterior surface of intestines likewise slate coloured. In interior, a deal of liquid mucus, viscid, strongly coloured with bile. Mucous membrane of colon swollen, of a dirty reddish brown, strongly hyperæmic, as well as that of small intestine, especially near the ileo-cæcal valve. Mesenteric glands tumefied, of a bluish red on section. In great venous trunks of abdomen there is a little reddish and dirty blood. Brain appears normal; vessels of membranes are full as usual. Cerebral substance shows œdema, and some pale dots of blood. The plexuses are pale; ventricles are empty. (*L'Art Médical*, loc. cit.) [Dr. IMBERT-GOURBEYRE, writer of the article in *L'Art Medical*, to which we are indebted for so much of the foregoing, adds three other cases of poisoning in this number, and five more in that for November in the same year (1879). They add nothing to the picture presented in the foregoing narratives. Dr. Imbert-Gourbeyre finds the differentiation between poisoning by arseniuretted hydrogen and that by arsenic itself to reside in the simultaneous appearance, in the former, of vomitings, lumbar pains, hæmaturia, and jaundice (of which the two latter are the most important), and the absence of cramps. The symptoms are slower in supervening, and the patient is acutely ill for a much longer time before death or recovery. He shows that while all the other forms in which arsenic has been taken display similar toxic effects, those of arseniuretted

hydrogen have so many points of distinction that they must be separately classed.—EDS.]

5. A pupil of mine for a long time breathed arsen. hydr. in his private experiments, and in works where he superintended gildings and silvering by galvanism, in which zinc is extensively used. It brought on a peculiar kind of epilepsy, much like that described by Christison, which has latterly been gradually increasing, and his intellect, which was once one of the brightest, is now reduced nearly to fatuity. (SHERMAN, in *Prov. Med. and Surg. Journ.*, 1844, p. 1.)

III. *Experiments on animals.*—1. Hitherto, as in Naunyn's experiments (Reichart and Dubois' *Archiv*, 1868), no icterus could be induced in animals by ars. hydrogen. Stadelmann, by conducting experiments in a different manner, succeeded in setting up this condition in nine out of eighteen canine, and in a certain proportion of feline, subjects. With rabbits he also was unsuccessful. (*Arch. f. Exp. Path.*, xvi, 221.)

ARTEMÍSIA.

A. Abrótanum, L.; southernwood. *A. Absinthium*, L.; wormwood. Nat. Ord., *Compositæ.*

Artemisia Abrotanum. I. *Provings.*—1. Dr. A. M. CUSHING, well, but subject to itching papillary eruption on legs, and of habitually loose bowels, took, of a tinct. prepared by maceration from entire fresh plant, on Feb. 6th, 1866, at 10.30 p.m., 6 drops. In 5 m., head felt as if squeezed on temporal regions. Slight nausea, much eructation of flatus. 7th, took 8 drops at 10.35 p.m. 8th, at 10.30 p.m., 15 drops. 9th, 2 p.m., hurried desire to urinate after stool. 10.30 p.m., 15 drops. 10th, 11 p.m., 20 drops. Frightful dreams; awoke frightened and trembling. 11th. —Bowels costive for third time in his life when well. 2 p.m., 25 drops. Lame, aching pain on inside of r. knee, then on outside of l. knee. 12th, 10 p.m., 40 drops. Soon after, pain in l., then in r. leg at middle of tibia; pain and fulness of head; aching pain in ankles and feet, worse on outside of l. ankle. Old eruption feels sore, violent pricking itching, extending to head and arms. 13th to 16th.—Pain in ankles and knees; feet lame and painful. 15th and 16th.—Severe aching pain in both axillæ, as if sore was forming. 16th, 11.35 p.m., 60 drops. Soon after heard noise like humming of bee; walked round room to find it. When in bed it sounded like persons talking in distance; on listening intently it disappeared, but would return as he turned his mind from it. Itching followed, then darting pains in different parts of body, most in lower lobe of both lungs, and in legs below knees. 17th, 6 a.m., urgent desire for stool; loose stool; another at 7 a.m. 9 a.m., seized, when riding, with lameness and aching of l. arm above elbow on outer and under side; lame all d. 17th, 10.30 p.m., 50 drops. 18th, 9 p.m., 100 drops. In 10 m. nausea, pricking pain r. side of chest, pain in l. lung, with weak, numb feeling of arms and limbs. 19th.—Awoke with severe pain in l. temple, continued all forenoon, with sore feeling in all limbs, mostly in joints; also in lower portion of l. lung; mouth hot and dry; felt sick all forenoon, better in open air. In afternoon severe pains; obliged to lie down; very sleepy; could not sleep; not able to attend to patients. E., better. 1 a.m. (?) while riding, very severe pain in l. arm above elbow. Frightful dreams of mad dogs, &c. On waking, very lame, worse in back; muscular soreness on motion, severe pains in back of neck, shoulders, r. side of chest, and limbs; r. hip so lame as to cause limping for some time. Bowels seemed costive, with loose stool. Severe pain all d. in side and back of neck, shoulders, limbs, back, and hips; arms and hands felt numb. Sensation as if breathing hot air, continued 2 d. In e. eyes smart, pain in l. eye, could not open it for several seconds. Uncommonly poor appetite. 21st. —Bowels more costive than for years. Pain in base of both lungs through d., with

darting pain in limbs and ankles; headache; pain in both hips, severe in r. hip and thigh. 9.30 p.m., natural stool. 10 p.m., 500 drops of 1st (aqueous) dil. In 30 m. strange pulling sensation of muscles of r. side of neck beneath angle of jaw, followed by almost intolerable itching of a corn on second toe of l. foot. 22nd.—Bowels natural. Aching pain all d. across hips; legs and feet lame and painful. Sore tongue and mouth all d. E., nausea, burning, and sourness of stomach. 10 p.m., 1000 drops 1st dil. In 5 m. seized with trembling all over. Nausea and sour eructations; pain just below heart, followed by crawling sensation and eructations; then pain and heat in bowels 15 m. after taking med. The raising of wind and trembling continue. Feels too warm in cool room. Pulse quick; wind rushes out of r. ear.; watery discharge from nose; desire to urinate; pain in testicles and back. At midnight got out of bed, walked round room; bowels bloated so much, it was difficult to walk or bend, seems as if bowels could be kept from passing out at anus only by keeping legs close together. Very severe itching of corn on l. foot. Restless sleep, with springing up, and constant jumping and thrashing of arms. 23rd, 6 a.m., very urgent desire for stool; 3 loose stools in forenoon, 1 in e. Pain all d. in shoulders, arms, and hips.; r. knee and ankle weak; very nervous; back quite lame. Very sudden pain in legs; pain in region of liver and kidneys of sick, sore, faint, inexpressible nature, very peculiar, almost amounting to fainting. Unable to walk on street. Sleepy all d.; heat in stomach; raises wind tasting of plant. Eruption nearly all gone. 10 p.m., bowels bloated and painful. Stomach very sour. 24th, 6.30 a.m., urgent desire for stool; loose stool. Forenoon, weak and lame; pain in shoulders, r. hand lame. Poor appetite. During proving, often drops reins unconsciously while driving. 25th.—R. knee lame and painful. 7 a.m., soft stool. 9 a.m., stool with much straining; sensation as if it was large and indurated, though quite the reverse. Mouth dry and sore. 26th.—Restless sleep; mouth sore and dry. 6.30, urgent call and loose stool. Back lame and painful. Eruption gone. E., soreness of head of l. fibula, so severe as to cause lameness when walking at three different times. 27th.—Very restless night, with heat and pain at epigastrium. Natural stool; slight itching of limbs, but no eruption. In forenoon, darting pains in various parts of the body, most severe in r. arm, above and near elbow-joint. Sore mouth, with increased saliva, more in n. Both legs lame and painful, from hips to knees; they feel very sore, but are not tender to touch. Appetite poor. Afternoon, pain above r. elbow. E., sore pain in knees, first r. then l.; limbs very weak; r. arm lame and weak. Yawning and eructation all day. Burning through r. side of chest; difficult breathing. 11 p.m., severe sore pain just above l. elbow; both hips and legs so lame it was difficult to walk. Mouth quite sore, confined mostly to gums near l. upper molars. 28th.—Unrefreshing sleep; on waking, both arms and both legs and feet very lame and painful, but relieved after motion. In ½ h. r. hand lame and useless. Chilly in very warm room. 10 a.m., l. hand as lame; he could not sit still. 11 a.m., both knees lame. 11.30 a.m., ankles and legs to knees so painful he could not sit still while examining a patient. 5 p.m., heavy pain in lumbar region, extending to both testicles. E., both legs weak, both hands painful, and so lame as hardly to be used. Soreness of mouth increases. March 1st.—Mouth better; pain in both knees. Hands painful and sore all day; handles everything with difficulty. Pain in back and testicles. 2nd.—Slept better; on waking early sharp pain in l. shoulder; in ½ h. pain in l. elbow and r. hand; severe and sore pain in both lungs. Pain in l. hypochondriac region, with eructation of large quantities of flatus. Pain in r. elbow all forenoon, darting pain in various parts of body and limbs. Mouth better; bowels natural; urine profuse. 3rd.—On waking both shoulders very lame and sore. Feels as if both arms were tied to body. In ½ h. pain is all in arms just above elbows. Afternoon, pain in back, hips, and knees. E., belching of large quantities of wind tasting of salt mackerel, though none eaten for months; cannot eat it. Pain in bowels all n., with several stools. 4th.—Joints all sore and lame. 5th and 6th.—Improving; during proving lay very straight in bed (usually lies with feet drawn up). Small scratch made a large sore. After proving old eruption returned, but not so severe as before, and was easily cured by rhus tox. 200 and has not returned. (*Publ. Mass. Hom. Med. Soc.*, iii, 19.)

2. Dr. GATCHELL proved tinct. (how is not stated) on two ladies with following results:

a. In the first,—¼ h., numb sensation in fingers; ½ h., dull aching in all fingers;

1 h., joints stiff, with prickling sensation. Had fugitive pains in shoulders all n., could not sleep for them. Next d. piles appeared, and became worse as rheumatic pains abated, with frequent inclination to stool, hardly anything but blood being passed. Prover also reports,—soreness of scalp, especially l. side; urine scanty.

b. The second was gloomy and desponding; ill-natured, irritable, and violent; exceedingly peevish, feeling as if she would like to do something cruel; thinks her brain is softening, having feebleness and dulness of mind, taciturnity, and no capacity for thinking. After ceasing drug was excited, loquacious, like shouting, good-humoured and happy. Head was weak, so that she could not hold it up; conversation or mental effort caused sense of fatigue in l. brain especially, and there was sensation of creeping chills along cerebral surface, with pricking sensation; also itching of scalp. She had scraping in throat; gnawing hunger, craving bread and milk, and —after ceasing drug—burning in stomach as from acid; weak, sinking feeling in bowels and colicky pains; darting and twitching in ovaries, latter extending to back, making it feel weak; raw feeling in respiratory tract caused by cold air, sudden hoarseness, weak voice; arms very weak, with aching from shoulders to elbows; very weak and disposed to lie prone. She remained very much relaxed and incapable, with weak sickly feeling for many d., and internal trembling when excited. (*U. States Med. and Surg. Journ.*, v, 291.)

Artemisia Absinthium. I. *Provings.*—1. Dr. H. P. GATCHELL gave unknown quantity to a lady of good health but nervous temperament. She reports —great tranquillity, felt soothed as if going into a beautiful dream, followed by apathy, foolish look, idiotic manner; tremor, then thumping of heart, felt towards back; feet very cold; eructations; distension of stomach and abdomen; great lassitude, wants to lie with head low; eyelids heavy; stomach feels cold; nausea; tongue protrudes and feels thick, so that she cannot speak distinctly; pain above eyes, which itch; dizziness on rising up; constant desire to urinate; food lies heavy; darting pain in r. ovary. In e. very much bloated; uncomfortable irritated feeling of stomach. Next d. still bloated; very weak; no appetite, loathes food; scalded feeling in throat; urine of deep orange colour and strong horse-like smell. (*U. States Med. and Surg. Journ.*, v, 293.)

II. *Poisonings.*—1. *a.* The accidents which arise from intoxication with absinthe are above all derangements of motility. They are *convulsive* phenomena. Foremost among them is epilepsy, which, unlike that incident to alcoholism, belongs to the *début*, that is to say, may manifest itself after the first excesses, at the end of a relatively short time. The epilepsy of absinthe differs also from that of alcohol in its *form.* Whilst the latter most frequently manifests itself at a very advanced stage, and generally presents only an analogy more or less close to a true attack of epilepsy, the absinthic epilepsy, on the contrary, has all the characters of a genuine and complete attack. The patient becomes pale, loses consciousness, falls sometimes with a cry, the face is contorted; this is followed by tonic convulsions, with tetanic rigidity of the limbs and trunk, which is raised up; then clonic convulsions of the limbs, the face becomes violet and cyanotic, respiration rapid, irregular, stertorous, froth from the lips sometimes bloody if the tongue is bitten, at last a comatose state, with stertorous respiration, which lasts a longer or a shorter time. After the person recovers consciousness he seems stupid, dazed, and recollects nothing of what has passed. Sensibility is very obtuse, and during the attack anæsthesia is complete. Sometimes the epilepsy of A. is not complete, but consists only in vertigo or temporary absence of mind,—as is seen in true epilepsy. The third characteristic of the epilepsy of A. is its short duration. It comes on violently after great excesses, and ceases completely as long as the patient remains sober, but as soon as he recommences drinking it makes its appearance afresh. There may be one attack only, or several during the d. or following days; but usually there are three or four.

b. Is this epilepsy of A. the effect of acute or chronic intoxication? We believe that it is an acute symptom which manifests itself at the outset of chronic intoxication, found more often in those who drink to excess habitually; its appearance is never long delayed after the person has begun to drink A. to excess. After drinking for six months or a year, some d. the person drinks to excess and the attacks come on. Acute alcoholic mania or delirium tremens is equally an acute symptom during chronic alcoholism; they also may come on in a relatively short time, while the epileptiform attacks of alcoholism show themselves only at a very advanced period.

Persons who are attacked by the epilepsy of A. drink 8, 12, or even 20 glasses of A. a d. Others drink but 3 or 4, and yet have the paroxysms.

c. A circumstance of great importance is the predisposition. We find a large number of drinkers who have never had attacks or only slight ones. There are others, on the contrary, who are attacked from their first excesses.

d. A large number of persons, habitually sober, on drinking occasionally a glass of A. become affected with a kind of intoxication, with pains in the head and sensation of constriction in the temples. Such persons tolerate, without trouble, a larger quantity of alcohol, and experience no symptoms from it.

e. Dr. Voisin says that the epilepsy produced by alcohol is usually characterised by long intervals between the attacks; the epilepsy of A. by the very large number of attacks in a very short space of time. I have reported a case in which there were from 150 to 200 attacks in 24 h. Drs. Marcé and Magnan have observed the same thing. (CHALLAND, *Étude sur l'Absinthisme, &c.*, 1871.)

2. Cl— Louis, æt. 32, came to Bicêtre, 31st Oct., 1863. This man, who was in excellent health, had lived soberly until the beginning of 1861, at which time he became a wine-seller. He contracted, about this time, the habit of drinking. At first he took wine and brandy; then a little absinthe. The alcoholic phenomena were not slow to make their appearance. Giddiness also occurred at times. During 1863 Cl—, to give himself more strength, partook more largely of the absinthe. The fits of giddiness became frequent, and, at some days' interval, there came on two attacks with sudden loss of consciousness, falling, grimacing, convulsions of the arms and legs, bloody foam on the lips, and biting of the tongue. One of these attacks took place in church during a funeral; the other occurred on the stairs; in both cases in a most unexpected manner. Delirium with terrifying hallucinations soon distressed the patient, and made it necessary to put him under supervision at Bicêtre. He arrived there 31st Oct., 1863, presenting symptoms of acute alcoholism. He recovered fairly quickly, and at the end of a month he was allowed to leave. On returning home he quickly betook himself to his former habits; on the other side the alcoholic effects were not slow in making their appearance. A little later, after a fresh abuse of absinthe, there occurred an epileptic fit exactly like the preceding ones. The patient was again sent to Bicêtre 28th Aprll, 1864, where he stayed, to recover himself, until the beginning of June. Let out again, he for some time forswore the absinthe, but he recommenced at the close of each d. to take a little wine and brandy. His sleep became bad; hallucinations showed themselves in their usual distressing manner; the appetite went, masses of phlegm were expectorated each m., and the limbs trembled and shook. This state lasted 2 months; but Cl—. finding himself so weak, had resource once more to his favourite liqueur. The absinthe soon brought on new fits of epilepsy. Cl— entered Bicêtre for the third time 5th Dec., 1864. At the time of his entry he still bore upon his tongue the marks of his teeth, a striking token of his last fit.

Such is this observation, not to call it an experiment. The subject was a strong man, a stranger up to then to all effects of alcohol and to all convulsive phenomena. He began by an excess of wine and brandy and became alcoholic; then he applied himself to absinthe and became epileptic. With the first residence at the asylum the alcoholic effects disappeared; once out, he began to drink again, and then the alcoholic effects returned; he took absinthe—a new attack of epilepsy. Again at the hospital, cessation of effects. For the third time, excess in wine and brandy, alcoholism; excess in absinthe, epileptic fits added. The hospital again and sobriety, cessation of effects. Could the effect be more intimately connected with the cause? Can one not divide the two poisonings, that by the alcohol and that by the absinthe? (*Journ. du Disp. Hahn.*, viii, 116.)

3. A druggist's shopman was found early one m. lying on floor, perfectly insensible, convulsed, and foaming at mouth. I was sent for, and found him no longer violently convulsed, but insensible; jaws clenched, pupils dilated, pulse weak, slow, and compressible. From time to time he uttered incoherent expressions, and attempted to vomit. Under emetics, stimulants, and internal warmth he gradually recovered. He was found to have swallowed ℥ss of oil of wormwood. On recovering, he had totally forgotten all circumstances connected with the case. (WM. SMITH, *Med.-Chir. Trans.*, xlvi, 23.)

III. *Experiments on animals.*—1. Essence of absinthe produces in animals fully

characterised attacks of epilepsy, with precursory phenomena, and often accompanied by psychical disorders of a very remarkable kind. (CHALLAND, *op. cit.*)

2. Messrs. Magnan and Bonchereau found out by simple and decisive experiments that the effects caused by the use of absinthe drunk as a liqueur, epilepsy in particular, were determined, not by the alcohol itself, but chiefly by the absinthe. The other plants which are used to impart an aromatic flavour to the absinthe have proved themselves harmless in experiments on animals. It has not been the same with absinthe, as one can see by the following experiments :—In a large glass bell is put a saucer filled with essence of absinthe, of which the vapours are exhaled in the confined air of the bell. Introduce an animal, for example, a guinea-pig, and examine it while it is there under the influence of the absinthe. The poor brute, at first surprised by the smell, stretches out in all directions its little pink nose. The first moments of the new order of things do not appear to it to be so very disagreeable ; but the pleasure, if it exists, is not of long duration. The guinea-pig, after having repeatedly perambulated its glass cage, begins to grow impatient; it runs with furious leaps, trying to find a way of escape. It has had enough of the absinthe. But the way out does not exist. The animal ends by falling on its side ; you see it draw up its little paws, which become stiff and motionless. Then all at once it shakes with convulsive shocks. The pointed nails of the guinea-pig glide over the glass; a frothy slime covers its snout; then the epileptic attack ceases, and the animal falls again inert. Absinthe causes the same epileptic attacks in cats, dogs, and rabbits. In a few minutes the mischief is done; the absinthe has exerted its poisonous influence.

And the alcohol? What part does it play under similar circumstances? One can judge by the following :—Another guinea-pig was, in its turn, confined under a glass bell, in which had been previously placed a saucer filled with alcohol. At first the alcohol fumes excited the animal; then the beast staggered like a drunken man; inactivity followed; and it ended by lying down in a state of the most profound indifference. The guinea-pig was simply intoxicated; it was not in the least epileptic.

After these experiments, then, no one can refuse to admit the convulsive properties of absinthe poisoning. (*L'Hom. Milit.*, Feb., 1880, p. 65. Boehm and Kobert, *Centralbl. f. med. Wissensch.*, 1879, No. 37, have since obtained similar results.)

3. Necropsies of animals poisoned slowly by absinthe reveal strong congestion of brain and cord, with their meninges. The hyperæmia of the medulla oblongata was excessive. There were in places small ecchymoses on the gastro-intestinal membrane and on the peri- and endo-cardium. (*Journ. of Psych. Med.*, ix, 525.)

ARUM.

Arum dracunculus, Willd.; green dragon. *A. italicum*, Miller. *A. maculatum*, cuckoo-pint. *A. triphyllum*, L.; Indian turnip, Jack-in-the-pulpit. Nat. Ord., *Araceæ*.

Arum dracunculus.—I. *Provings.*—1. A little over 1 oz. of expressed juice was mixed with 9 oz. pure saccharum lactis, marked "matrix." Of this a 1st dec. trit. was prepared in usual manner. July 6th, prover, æt. 36, took 10 grains of 1_1. At 2 p.m., pulse 74, full, soft, and regular. In 5 m. peculiar acrid sensation in mouth and throat, but not sufficiently marked to be unpleasant. Heart beat so violently as to shake walls of chest. Pulse 80, full, hard, and somewhat jerking. 2.15 p.m., tingling or slight stinging sensation in fingers and toes, as when circulation is impeded. Pulse 80, small, and regular; artery seems to roll under finger, and requires considerable pressure to be correctly counted. 2.45, fine tingling sensation all over r. hand, which is warmer and redder than l. and appears somewhat swollen. Pulse 80, moderately full, and more regular. 7.0, shooting pain in l. ant. inf. triangle of neck, near clavicle; aching pain in l. forearm, l. hand, and r. humerus. Pulse 74, full, and nearly natural, but rather weak and irregular. 7.20, sharp shooting pains at styloid process of r. ulna; r. hand still remains somewhat red and swollen. Retired to rest at 9; slept soundly till 7 a.m. Head feels heavy and

aches slightly in occipital and r. parietal regions. Throat feels somewhat raw; rattling of mucus in larynx at every full *expiration*, but this disappeared after rising and moving about. Half an hour after breakfast shooting pains in r. ear; they are transient but frequent, and leave feeling of fulness and slight aching in middle ear. 9 a.m., 15 grains of "matrix." Late and insufficient stool. 9.15, eructation of flatus from stomach; fine tingling or pricking sensation in hands and feet, especially r.; shooting pain down r. thigh; flushing of hands and face; heart's action increased, but not as violent as after taking 1x yesterday; aching in r. humerus. 9.35, copious semifluid stool, with much flatus; eructations tasting of medicine; small accumulation of mucus in throat, the raising of which, by coughing, produces slight mucous rattling in larynx; disposition to swallow, arising from excess of mucus, but no unpleasant acrid sensation in throat, as he had expected. 10 a.m., pulse 74, full, soft, and regular. Feeling of warmth and fulness in l. middle ear, similar to what was felt at 8 in r., but no shooting pains; probably this symptom arises from accumulation of mucus in l. Eustachian tube. 10.20, ear symptom has changed sides; warmth and fulness now in r. ear; l. ear normal. Disposition to swallow has subsided, but has left slight uneasiness in throat, and disposition to cough. Act of swallowing develops slight soreness in muscles of throat, and renews temporarily the feeling of warmth and fulness in ears, sometimes in one and sometimes in other, seldom in both at once. "I am satisfied that throat and ear symptoms, with exception of soreness, are owing to excess of mucus in throat, larynx, and Eustachian tubes." 3 p.m., increased soreness of larynx, and greater disposition to cough; burning of soles of feet; heat, dryness, and smarting of eyelids; fine shooting pain in course of l. spermatic cord. 5.0, preternatural heat in palms of hands; loose cough, with soreness of throat, closely simulating mild attack of catarrhal angina; soreness not very marked, except during deglutition; feeling of dryness and smarting in throat, kind of rawness, with sense of fulness, not really painful, but sufficiently annoying to attract constant attention, and producing continual disposition to clear throat by swallowing, coughing, or hawking. 9.30, retired to bed and slept well first part of n., but awoke about midnight with great oppression of breathing, kind of asthmatic attack, which, however, soon passed off, leaving considerable rattling of mucus in larynx and upper part of trachea. Noticed that rawness in throat and soreness in laryngeal region, which were present on retiring, had almost entirely disappeared. Slept badly rest of n. In m. raised by coughing small amount of mucus. No rattling of mucus at this h. (7 a.m.) except by forced *expirations;* undue secretion is now limited to larynx, but can be distinctly heard whenever expirations are prolonged. 8th, 8 a.m., natural motion of bowels; no flatulence. 9.0, 30 grains of "matrix." 10.0, occasional emissions of flatus from stomach; ear symptoms as before noted, but not so marked; fine pricking and tingling sensations in feet and hands for last ½ h., began in r. foot, and afterwards affected in regular succession r. hand, l. foot, and l. hand; occasional shooting pains have occurred during same time in following order:—r. malar region, r. external malleolus, thenar eminence of r. thumb, l. malar region. Pulse 84, small and somewhat irregular. Occasional shooting and aching pains along r. humerus and r. thumb. 10.30, aching pain behind r. ear, also in r. shoulder; slight aching pain in præcordial region and down l. arm; also in r. forearm and over l. eye; these pains are all very transient. 11.0, pain in bowels caused by incarceration of flatus; escape of flatus from stomach and bowels. 12.0, aching pain along outer aspect of l. foot, immediately followed by similar pain in corresponding part of l. hand; shooting and aching pains in l. brachial plexus of nerves.* 12.30, pulse 74, full,

* "Most *arum* pains are observed to be very transient in any one part, and to course along the extremities, sometimes in one direction, sometimes in opposite one; they are not very sharp, and are generally intermediate in character between aching and shooting. Those in the nervous trunks partake more of shooting character, but always leave aching sensation behind them. Have not been entirely free from these pains longer than a few m. at a time, for more than 2 h., having noted down only the most prominent. At first they were almost entirely confined to r. side; now they are limited chiefly to l. I have just had one of these characteristic pains in l. side of head; it began in l. occipital region, gradually subsided, and reappeared successively in l. temporal and l. frontal regions. This remedy acts primarily and pre-eminently upon nervous system, and through it upon circulation."

soft, and slightly irregular. 4 p.m., irresistible desire to pass urine, which is diminished in quantity, very high coloured, and has a burning or smarting effect on urethra. 6.0, Great languor and depression of spirits; dull, heavy aching in chest; sinking feeling at pit of stomach; aching along spine, particularly between shoulder-blades and in lumbar region; great weakness across loins; feeling of extreme prostration. Urine subsequently passed normal in amount and character. Symptoms last-mentioned continued to increase until exhaustion compelled him to retire early (8 p.m.). At this time slight perspiration on neck and breast, the first during proving. 9th.—Awoke at 6 a.m. greatly refreshed. Found himself quite hoarse; expectorated small quantity of thick mucus; throat raw and tender; rattling of mucus in larynx during *expiration*, but which ceased on rising, except when expirations were prolonged by voluntary effort. Conjunctivæ highly injected; lids dry, stiff, slightly agglutinated at their edges, which burn and smart. Proving was continued through month, with development of but few additional symptoms. Bowels somewhat irregular, at one time slightly constipated, at another somewhat loose, but never any decided diarrhœa. Paroxysms of dyspnœa would sometimes occur, with much aching in chest, and always associated with considerable secretion of mucus in larynx and trachea. On 10th, and also on 17th, shooting pains in r. ear, sometimes very severe. On 23rd, an aphthous ulcer appeared on tongue, and on following d. mouth and throat became so sore that proving had to be discontinued. It was resumed, however, on 25th by taking ʒj of "matrix;" this produced a violent asthmatic attack at n., and lighter ones on each succeeding n. for about a week, when they left altogether, but "there is still (Aug. 1st) an annoying cough, and a mucous rattling in the larynx, which indicate that this will prove a valuable remedy in laryngeal, bronchial, and pulmonary complaints." Aug. 1st.—ʒj of "matrix." Immediate effects similar to those already detailed. 3rd.—Deep shooting pains in r. ear; cough from laryngeal irritation, worse at n. and when lying down; constant rawness of throat, hoarseness, and rattling of mucus in larynx. 4th.—Similar symptoms, shooting pains in r. ear occurring frequently, and continuing sometimes 10 or 15 m. 5th.—Similar symptoms, ear pains still persistent. 6th.—Symptoms continue as before, with occasional shooting pains also in l. ear. 7th.—No change in symptoms, except three copious bilious passages from bowels, attended with aching in abdomen and burning in rectum. 8th.—Bilious diarrhœa, borborygmus, and escape of much flatus from bowels. 9th.—Bowels regular; slight burning in urethra after micturition. 12th.—No marked change in symptoms until last n.; coughed all n.; in m. had very bad taste in mouth; tongue and mouth coated with foul, slimy mucus, having putrid taste; but the most important symptom was a *purulent expectoration*, consisting of *thick, heavy, yellowish-white pus*. 16th.—Since 12th have continued to raise this purulent secretion from larynx in large quantities. Last n. was so annoyed by gravity and persistence of laryngeal symptoms—violent cough, hoarseness, rawness of throat, and profuse purulent expectoration, which greatly alarmed his wife, that he took a dose of *Spongia* 3x, which so far relieved as to secure a good night's rest, the first he had had since 12th. 17th.—Frequent copious emissions of limpid urine. 18th.—Inclination to urinate every h. or so during d.; urine increased to 4 or 5 times normal amount; tenderness and slight smarting or burning of orifice of urethra, especially during micturition. Eruption of pimples, species of lichen, on nose; and patches of urticaria on r. arm near elbow. During proving, *i.e.* for last 4 or 5 weeks, have been entirely free from an intolerable itching of scrotum—a chronic pruritus—of ten or twelve years' standing. Have also noticed during this time great diminution, and most of time an entire absence of, sexual desire, penis flaccid and relaxed. This condition of generative organs and a slight laryngeal irritation are the only pathogenetic symptoms remaining at this date (Aug. 22nd). (C. P. HART, M.D., *Amer. Obs.*, 1875.)

II. *Poisonings.*—1. After having cut and pounded the A. drac., Dr. DEMEURE felt very soon prickings in fingers of r. hand, as from thorns; immediately after sensation as if he had put his hand into nettles; and, in rubbing fingers one against the other, sensation as if he had a number of small needles stuck upright there. Some h. later, twice, at a brief interval, pain in r. index finger as if strongly twisted round; styptic and metallic taste, with bitterness at back of mouth. (*Journ. de la Soc. Gall.*, iv, 112.)

Arum maculatum. I. *Provings.*—1. HERING. (No information about doses, but stated (*Guiding Symptoms*, sub voce) to have been made on three provers, "very good observers.") Blood from gums when kissing, immediately. Difficult deglutition as though the soft palate came "down." Very monosyllabic, sleepy after dinner, so that he closes his eyes. Oppression in abdomen as in great anxiety and fear, without palpitation of heart; rises up afterwards into chest, so that (with hot respirations) he feels an oppression all over chest; it then rises into throat, just like a pressure from without inwards, in palate behind over larynx, provoking deglutition, but rendering it difficult; afterwards it feels too narrow. Violent painful pressure on a spot in abdomen betwixt navel and top of hip, especially when standing, when lying on side or back, most when he makes the chest very full or stretches the abdominal muscles; external pressure is painful also. Pressure in throat which provokes swallowing, but it feels too narrow, renders swallowing difficult as if something were swollen on the l. side above the larynx. Slight pressure in l. temple. Pressure under ears behind jaw. When he presses with the finger on l. side of throat near the trachea below the larynx it is painful. In m. after a meal, emptiness of abdomen as from vomiting. Drowsiness, scarcely repressible, especially 1 h. after dinner, falls asleep with red face. General great exhaustion. Urine watery, clear, smells of burnt horn; after standing a cloud in the middle. (*Archiv*, xiii, i, 169.)

II. *Poisonings.*—1. *a.* A. maculatum contains numerous raphidian cells. After chewing a young stalk for a few seconds, a very intense pricking stinging pain was felt upon the tongue and mucous membrane of the lips and throat, accompanied with a flow of saliva which seemed to relieve the pain a little: the pains were as if 100 little needles had been run into the tongue and lips. A friend, who followed my example, had, in addition to these symptoms, constriction and burning in the pharynx, his tongue was swollen, and its papillæ injected and raised. The mucous membrane of the lips and throat appeared inflamed; the pains on tongue and lips were increased by pressure with the teeth.

b. In 2 or 3 cases the leaves have been eaten by children, and have produced very distressing effects. In one instance 3 children partook of them; their tongues became swollen, so as to render swallowing difficult, and convulsions followed; 1 died in 12 and another in 16 d.; the third recovered. (*British Poisonous Plants*, by C. and P. JOHNSON, p. 46.)

2. Edward V—, æt. 43, labouring man, suffering from tapeworm, to cure himself picked a leaf of A. maculatum and chewed up the stalk and swallowed it. He immediately experienced burning hot pricking sensation in tongue, throat, and œsophagus, and intense pain at epigastrium. Tongue became immensely swollen, and saliva ran out of his mouth "like water." About a m. after he vomited and brought up stalk again. Felt somewhat easier after this, but burning-hot pricking sensation and swollen state of tongue continued for a d. or so. Appetite did not return for some little time. Patient recovered without medical assistance, but says he will never try to "doctor" himself again. (STEELE, *Lancet*, 1872, ii, 530.)

A. triphyllum. I. *Provings.*—1. Rev. G. E. GRAMM, æt. 42, took 3 drops of 3rd dil., Nov. 11th, 1865, at noon. At 1.30 p.m. pressing pain in r. forehead, at 2 same pain in r. eye, at 2.30 in r. shoulder and between scapulæ. At 4 repeated dose, and again at 9; at 10 low spirits and lassitude; sleep at n. restless, with heaviness of head. On 12th, at 7 a.m., urgent desire for stool, obliging him to get up; stool watery, dark brown; no appetite for midday meal; slight cutting pain in abdomen; watery brown diarrhœa, with eructation of food; burning at anus. On 14th, no stool; feels somewhat better.

Next d., and subsequently after taking single doses of higher dilutions (10—30), prover had catarrhal symptoms of throat and larynx; but as, after preaching, he always had hoarseness, roughness in throat, and fluent coryza, these parts cannot be regarded as healthy with him. (*Hahn. Monthly*, ii, 459.)

2. Mr. H—, æt. 46, perfectly healthy, took 5 drops of 3rd on tongue. Next d. had fluent coryza, with frequent sneezing, and there followed all the symptoms of an acute catarrh, with soreness and burning in mouth and throat, culminating in hoarseness and soreness of lungs. He was not well again for a fortnight. [So severe and prolonged an attack is unlike medicinal disease, and seems more probably the result of atmospheric causes.—EDS.] (*Ibid.*)

3. Mrs. M—, æt. 40, predisposed to throat affections. On Sept. 24th, 1866, took

same dose. 25th.—Much watery discharge from nose; constriction of throat; mouth very dry; cold running over body at n. 26th.—In m., while getting awake, cramp in r. leg; dull pressing headache, better after dinner; still fluent coryza and frequent sneezing. 27th.—Cramps as yesterday, and coryza. 28th.—Head dull, full, without pain; eyes cloudy. 28th.—Woke at 4 a.m. with constriction in throat; headache, better after breakfast; nose watery; soft stool, with tenesmus. 30th.—Feels better. (*Ibid.*) [This proving also is given with reserve.—EDS.]

4. Dr. JEANES reports "smarting of anterior dorsum of tongue, without tasting root, merely from odour," and (without further information) the following symptoms:—dizziness and fulness of head, with absence of mind and forgetfulness; pain in region of atlas and axis, extending to r.; pain in r. hip, under trochanter, also in middle of l. tibia, where there has been a discoloured spot on skin some years; smarting of eyes; pain in temples; stinging pricking in soles of feet, and tickling itching in centre of r. sole; raw feeling at root of tongue and in palate; dimness of sight, as if veil were drawn before eyes, without pain or giddiness; spectacles do not assist vision; pain and soreness to touch of scalp on vertex; evening drowsiness. (*Ibid.*)

ASAFŒTIDA.

Ferula Asafœtida, L. Nat. Ord., *Umbelliferæ*. The gum-resin, obtained by incision from the living root, is the part employed.

I. *Provings.*—1. FRANZ. [This is a pathogenesis consisting of symptoms from Hahnemann, Gross, Gutmann, Stapf, and Franz himself. Their contributions, however, are not distinguished, and no information is given as to how the drug was taken.—EDS.]

Immediately, tensive shooting in r. upper arm, from above out at inner side. After ¼ h., weakness in head. Superficial twitching on inner side of l. thigh. After ½ h., pressure in r. side of face from within outwards. Pressive shooting pain in r. lower ribs, extending to flank of that side. Attacks of slight pinching in hypogastrium. Drawing pressive pain with tightness of chest. Slight twitching in r. big toe. After ¾ h., obtuse pressure in sternum; going off on in- and ex-piration, but returning while writing. After 1 h., pressure externally in forehead. In region of eyebrow cramp-like drawing across. Pinching in bowels with discharge of flatus. Obtuse shooting in l. shoulder. Twitching in l. shoulder. Boring pressure on inner side of l. forearm, from within outwards. Pressive pain under r. calf, goes off on walking. After 1¼ h., pressure in r. temple. After 1½ h., painless rumbling in bowels. Arter 1¾ h., pressive pain in r. side of forehead, from within outwards. After 2 h., sharp shooting near penis in pubes. Fine burning stitches in and behind r. scapula, towards ribs. Pressure in r. side of nape. Fine tensive stitches in r. shoulder-joint towards inside. Quivering in deltoid. Pressure on outer side of l. forearm. Twitching of muscles of l. thigh. Sharp outward shooting in r. tibia. Quivering in l. sole towards toes. After 2¼ h., burning shooting in l. eye. After 2½ h., pressure in forehead with exhaustion of whole body. Pressure in l. ear. Fine sharp stitches in navel. Violent stitch in hypogastrium. Diarrhœa with bellyache. Pressive pain in r. scapula. After 3 h., whirling in head. Tensive drawing in l. upper arm on its inside. Violent tearing pressive pain in whole r. leg, less when walking. After 3½ h., sharp stitches externally in l. side of belly, removed by rubbing. After 4 h., crawling pricking in umbilical region. Quivering in deltoid. Twitching in muscles on outer side of l. upper arm. Burning shooting in r. patella. Sharp shooting runs down l. tibia on inner side. Sharp shooting on dorsum of r. foot, goes off on walking. After 4½ h., pricking burning in l. cheek. Drawing shooting pain in l. side of chest. Weak movements in l. intercostal muscles. After 5 h., pressive pain in forehead, from within outwards. Itching in skin of abdomen below navel. Itching pricking in skin in r. side of hypogastrium. Flatus with diarrhœa. Pressive stitches in r. thoracic cavity, followed by pricks, with pressive pain in ribs near spine. Pressure in l. intercostal muscles from within outwards, aggravated by inspiring and expiring. Fine stitch from r. loin to ribs. Quivering in muscles of r. thigh. After 5½ h., burning in l. eyeball as from within outwards. After 6 h., pressive pain in forehead. Pinching in bowels. Stitch in r. ribs. Tiresome backache, especially

under scapulæ. Backache in r. side. Itching pricking in l. tibia in front below the knee; goes off on walking. After 7 h., burning in r. elbow-joint, on its outer side. After 8 h., pressive shooting in back of r. hand. Pressure on roots of middle and index fingers of r. hand. After 9 h., quivering in l. shoulder-joint towards outer side. Pressure on inner side of thumb. After 9½ h., pressure on l. side of occiput. After 11 h., rumbling in bowels. After 12 h., burning in r. eyeball. Dryness in œsophagus; when swallowing, tension there. Shooting pinching in l. side of belly. After 21 h., pressive pain out at navel. After 23 h., Quivering shooting in l. side of belly, when in- and ex-piring. Cutting pinching in bowels. Twitching in r. cervical muscles. After 24 h., pressure in l. cheek. Stitches in region of diaphragm, r. side. Obtuse stitches externally in l. scapula. Tensive stitch in dorsal muscles of l. side, from below upwards. Fine stitches in r. 3rd toe, when walking. After 25 h., quivering in r. thigh anteriorly. After 26 h., tensive burning in r. eyeball, pressive pain in r. side of chest, from within outwards. Tensive shooting in l. loin continuing during in- and ex-piration, going off when walking. Fine pricks like needles about l. loin. Stitches in l. shoulder-joint, from within outwards. Shooting pain on inside of l. upper arm. Fine stitch on elbow. After 27 h., pinching sharp stitches on r. inner side of ribs. Itching of skin on patella. After 29 h., burning pricking in navel. Pain in back, especially in r. scapula. Pressive pain from r. wrist to r. index. Obtuse stitches in r. glutæi muscles. Quivering in inner side of r. knee-joint. Obtuse shooting in l. ankle-joint on inner side. After 30 h., pressive pain in r. side of head. Can work no longer on account of backache. Itching in r. knee-joint on its inner side. Unusual desire to sleep. Out of humour and disinclined to work. After 31 h., pressure in nose as though it would burst, especially in r. ala. After 32 h., pressive shooting in sternum from within outwards. After 34 h., pressive pain in middle of sternum with a kind of nausea up from chest. Twitching sensation in internal muscles of l. upper arm. After 36 h., coryza. Quivering in l. knee-joint on its inner side. On l. tibia pressure, going off on moving. Quivering in r. ankle-joint inferiorly. After 37 h., pressive pain in l. intercostal muscles from within outwards. After 41 h., boring shooting in l. loin from within outwards, going off on in- and ex-piration. After 42 h., itching in r. scapula. Quivering in muscles of l. scapula. Itching pricking under r. inner ankle, goes off on rubbing. Digging in inner side of l. foot. After 43 h., boring shooting on inner surface of r. upper arm, not going off by movement. After 45 h., pressure in l. side of head from within outwards. Digging pressive shooting in l. loin from within outwards to ribs, with anxiety. Obtuse stitch from thumb towards back of hand. After 46 h., pressive pain in r. sole when sitting. After 47 h., boring obtuse stitches in l. side of ribs outwards, when inspiring and expiring. After 48 h., quivering in l. shoulder-joint towards inside. Burning stitch on outer side of r. upper arm. Twitching drawing in l. thigh. Pressive pain in dorsum of l. foot when sitting. After 49 h., itching in r. eye. Pressive pain in r. ear. Transient stitches in r. side of back. Quivering of anterior muscles of thigh in upper half. Itching creeping on under surface at r. big toe. Burning pressure at root of l. big toe. After 54 h., cutting pain under r. scapula. After 58 h., tensive stitches in l. pectoral muscles. After 60 h., needle pricks externally in penis. After 61 h, burning drawing in r. intercostal muscles. Fine stitch in l. knee when sitting. After 62 h., burning in l. eyebrow. Burning stitches in r. eyeball. Obtuse stitches outwards in l. side of abdomen, with flatulence. After 63 h., along with constriction of throat pressure in chest. Obtuse stitches in l. ribs. Sharp shooting burning in tip of l. index. After 64 h., shooting in thoracic cavity extending to fauces, when standing and sitting. Pressive beating in thoracic cavity extending to fauces when standing and sitting. Fine stitch in elbow. Fine long stitch in bend of elbow. After 66 h. itching in dorsum of foot. After 67 h., digging shooting outwards from diaphragm to l. hypochondrium when inspiring and expiring. After 68 h., pressure in l. temple from within outwards. Pressive shooting in r. upper arm on its inner surface from within outwards. Quivering in r. glutæi muscles. Burning pricking in l. little toe. After 69 h., pressure in thoracic cavity out towards r. side. After 70 h., shooting in l. side of belly from within outwards. After 72 h., itching in r. cheek. Tensive burning in l. calf. 1st d., rush of blood to head with heat of face. Headache as if muddled in head, during which attention is apt to be overstrained. Confusion of head with pressure in temples. In forenoon obtuseness of senses, especially of hearing; he hears nothing distinctly, has always to ask twice. Great feeling of

dryness of mouth, though he has moisture enough in it. Drawing down along l. side of neck when moving. Loathing at beer, it tastes slimy. Perceptible pulsation in pit of stomach. Soon after eating pressure in gastric region. Violent pressive pain in pit of stomach towards hepatic region, when sitting. Sudden violent jerky stitch from r. side of abdomen outwards, from within to external integuments. Stitches in l. side of belly when walking. Contracting pain under navel when standing. When walking after dinner, twisting pain in abdomen. Drinking disagrees with him, causes immediately weight and cooling sensation in bowels. In iliac region, on drawing in abdominal muscles, a pressive pain. On bending chest forwards pressure on lower part of sternum. Drawing pressive pain along 4th and 5th last dorsal, and 1st lumbar vertebræ, as if along their bodies. Pressive sacral pain, especially when bending the body back and forward. Stitches along sacral bone, down to anus. Pain in perinæum, as if something blunt pressed out there. Stitches in latissimus dorsi near upper arm. At outer end of clavicle, when sitting, a pressive pain. Drawing pain about head of humerus, when he held arm still, with a kind of trembling over-excitement (as after a great debauch) in its muscles which he must always keep moving. Tearing pains up along forearm, on moving fingers. Tearing in l. femur when sitting. Drawing pressive pain in tendons of hough on stretching them. Great weariness when moving; as long as he lies or sits still he feels strong, except a feeling of faintness when his mouth becomes dry. In afternoon, flushing of heat on cheeks.—2nd d., sensation in brain under upper part of frontal bone, like undulation and quivering, m. Near frontal protuberance externally, continued burning pricking, with pain like ulceration, relieved by touching, but immediately returning. Pressure in both eyes. Bellyache in upper abdomen as if chilled, and as if diarrhœa would come on, with a kind of bulimy. In m., feeling in gastric region and whole abdomen, as if all were bruised there, with feeling of fulness in stomach and eructations. Pulsation in pit of stomach, perceptible to finger. After eating, pressure in gastric region, with great faintness. On merely compressing abdomen, pressure in lower part of stomach (xiphoid cartilage) with nausea and feeling of fulness in pit of stomach. Shooting outwards in both sides of belly after eating when sitting, going off by pressing on it. Across abdomen, pinching drawing when sitting, with obtuse stitches going outwards in l. side of belly. In l. side of hypogastrium violent shooting and drawing that extends along inside of os ilii, when sitting, m. After eating, tension in abdomen, as if he had over-reached himself. Sensation of great discomfort in whole abdomen, with great weight in it and pressure in its sides, m. Crossness and anxiety, which seem to come from abdomen, when he has a little difficulty in fixing his attention, m. Soon after dinner, when lying, great oppression of chest with pressure and throbbing in it. Stitches and pressure on chest when lying, with very difficult, sobbing, jerky inspiration, going off on pressing on chest with the hand, and when sitting up. Drawing along l. side of neck downwards on moving. Paralytic drawing pain along l. shoulder and down upper arm, when at rest. Tearing stitches upwards, followed by burning, in r. forearm when at rest. In the wrist bones, pain as if beaten. Pressive drawing in bones of wrist and instep on moving. When lying and at rest, drawing pressure on backs of fingers, and blows from forearm to elbow.

No time given.—Dizzy. Stupefying tension in head, especially l. side. Brain feels very expanded. Slight headache in forehead. Drawing, undulating pressure through l. half of forehead, ending in a numb pressure on frontal protuberance. Under r. frontal protuberance a slow intermitting pain, like beating outwards. Feeling of tensive confusion and oppressive weight of forehead (after olfaction). Fine needle pricks in l. frontal protuberance. Under r. frontal protuberance single quick and deep stitches, like blows, and sensitiveness remains there afterwards. Feeling of pressure on crown. In r. parietal bone, pain as from a peg pressed in deep. On l. side of head a pressure coming on suddenly, quickly increasing, as from a blunt instrument pressed in; goes off suddenly. A couple of fine superficial pricks on r. side of top of head. In r. side of head, above ear, a drawing, that changes into a simple shooting. In l. temple, intermitting inward-pressure almost like beating inwards. Above r. temple, a sudden transient obtuse pressure. In l. temple, suddenly, a pain like a sharp peg pressed in. Single deep stitches in l. temple. Slow successive obtuse stitches in l. temple. On outer border of l. orbit, dull pressure. In upper eyelid, frequently a quivering movement. A transient numb

pressure on middle of l. upper eyelid. For 2 d., periodical burning in eyes, and compression of eyelids as if sleep would come. Tiresome dryness and dry feeling of eyes. A kind of dimness of eyes; when writing, the letters are dimmer as if a slight veil were over them; goes off after vomiting. On various parts of face, *e.g.* in zygoma, nasal bones, painless tension, with a kind of numb feeling. Slight transient drawing on outer border of r. concha. Repeated short drawing in both external meatus auditorii. Clear ringing in ear. On rami of lower jaw, sometimes a transient pain like prolonged cramp. On l. angle of chin, in a small space, a numb pressure, extending to the tooth exactly opposite. Nausea. Intermitting pinching in upper abdomen. Visible pulsations in pit of stomach. Burning in abdomen. Pain in perinæum as if something blunt pressed out there. Increased discharge of flatus. Pinching in belly with discharge of flatus. Slight, sometimes almost quite involuntary discharge of flatus, which he hardly notices. More frequent stools than usual. For 3 d., two to three loose stools daily with bellyache. For 4 successive d., three to four diarrhœic stools with bellyache. Violent sneezing several times during d. In trachea, so choky that he must frequently cough, and the cough is hoarse. After dinner, stitches in region of last true rib on r. side, and oppression of chest. Below r. axilla anteriorly, a pressing inwards, increasing in fits, without oppression of breathing. Boring stitches in l. thoracic cavity from within outwards, equally felt when in- and ex-piring, and continued. Below l. axilla, some fine superficial, but acute, needle-pricks. Below l. axilla, a transient inward pressure. In l. scapula, repeated transient drawing. Burning in dorsal vertebræ, more towards l. side of back. Quivering in muscles of lower half of back when sitting. Needle-pricks in all intercostal muscles, when sitting. In the region of short ribs, round about over the back, a jerking constriction. Tearing sacral pain when sitting. In l. upper arm, near shoulder-joint, intermitting cramp-like pressure. In slow intermissions, on inside of l. forearm, cramp-like drawing radiating upwards. Obtuse shooting on inner side of r. forearm. Cramp-like twitching in r. forearm downwards, with feeling as if hand would get numb. Scraping sensation on ulnar side of wrist. A pain that becomes occasionally stronger on outer side of l. wrist, at side of thumb. On metacarpal bone of l. middle finger a kind of numb pain, as if a heavy body lay upon it. In the flesh between metacarpal bones of l. thumb and index, cramp-like pain. Cramp-like painful twitching in metacarpal bone of l. thumb. In r. palm a dull pain as from a body pressing on it, with sensation as if hand would become numb. On r. thumb a transient cramp-like pain, not interfering with its movements; soon afterwards in l. thumb. On moving fingers, tearing pains up along forearm. Burning on anterior surface of thigh when sitting. Pains in flesh of r. thigh, as if a sharp body were sticking in it. On outer surface of l. thigh, on a small spot just below hip-joint, dull but painful pulsating stitches. Tensive drawing in r. thigh on its inner side. On outer side of thigh paralytic drawing pain when sitting. A restlessness (trembling) in thigh and leg when sitting, like the violent pulsation of the arteries after a pedestrian journey. On inner surface of l. thigh superiorly, painful twitching in slow fits. On anterior surface of l. thigh near knee, repeated undulating twitching. Pressive pain behind l. patella. Stitches in knee near patella when sitting, the latter pains when touched as if sore and ulcerated. In upper part of knee, on a small spot, burning pain, which sometimes changes into burning pecking. Quivering on outer side of l. knee-joint. General twitching in muscles at upper part of r. tibia. In l. leg (when one is crossed over other and hangs down) feeling as if it would become numb. Legs easily go to sleep where their nerves are ever so slightly pressed, *e.g.* when he crosses his leg while sittting the other leg goes to sleep immediately. On r. instep, tension as from a tight boot in irregular fits. On inner side of l. foot painful intermitting beating. In ball of l. sole, feeling as if had stood long on it. In l. big toe occasionally a painful pecking. In l. big toe a simple sometimes pecking pain, when at rest or when moving. Painful pecking in tip of big toe. Needle-pricks. Fine superficial, but painful pricks as with pins here and there, must rub. On several parts of limbs transient cramp-like drawing, like twitching. Feeling of heaviness of whole body. Feeling of general exhaustion, the limbs fall down heavily and limply, and head is dizzy. Sleep full of dreams of things formerly done, or spoken of. Gay dreams of company and feasting. After dinner, febrile state, with hot feeling in face, no thirst, but anxiety and drowsiness. Very irritable and again indifferent to everything. (*Archiv*, i.)

2. LEMBKE. 16th March, 1868, 3 p.m., 5 grs. in water. 4 p.m., pressure and heaviness in forehead. Frequent pressure in shoulders, most in r., in knees, most in r., when sitting. Wandering shooting pains in knees and ankle-joints when sitting, sometimes changing into feeling of pressure. Heat in cheeks and forehead, with weight, 5 p.m. Frequent collection of saliva in mouth, teeth on edge. Shooting in joints of some fingers. Drawing and pressure in occiput. Drawing pain in r. cervical muscles. Pressure in muscles of r. upper arm. During the continued heat in face and forehead, chills in back and cold hands, 5.30 p.m. Drawing here and there in muscles of r. thigh. Constant eructation of air with garlic taste. Drawing in muscles of l. scapula. Severe pressure in joint of l. thumb and later in joints of other fingers. When sitting frequent slight palpitation of heart, more like a trembling of heart. Shooting in r. calf and like pinching, lasting long. Then the same pain in muscles above r. knee. Pressure in sternum; also when walking pressure in ankle-joints and knees. The other pains repeated and alternating all e. The heat of face continues till 7 p.m., and ears very hot externally. Frequent drawing in forehead, 7 p.m. Especially severe pressive pain in r. ankle-joint when walking, lasting long and recurring; and in l. ankle-joint the same pain occurs later, also when sitting, but worse when walking. Severe boring above l. eyebrow, 7.30 p.m., then the same r. Towards 8 p.m. the symptoms gradually go off.—17th, 6.30 a.m., pressure in knees and muscles of r. upper arm. 8 a.m., 6 grs. Pressure in knees and wrist-joints. Pressive pain in l. thumb-joint. The urine passed smells distinctly of asafœtida. Pressive pain in muscles of inner side of r. thigh, in r. ankle-joint, repeatedly, also attacking l. ankle-joint, both when sitting and walking. Drawing pain in r. toes. Heat in face, 8.30 a.m. Frequent eructation of air with taste of asafœtida. Pressive pains in shoulder-joints. Drawing pain in occiput. Pressive pains in knees and ankle-joints when walking. Pressive drawing pains under l. border of ribs when walking, and in muscles of scapulæ. Pains in knees particularly acute and long-lasting, and very often in joint of l. thumb, 9 a.m. Tearing pains frequently in forehead. Pressure in l. side of thorax, in elbow-joints, under l. scapula, in hands, shoulders, &c. Severe shooting in r. calf when sitting and walking. Cutting in abdomen when walking and sitting, 1 p.m. Whilst walking and sitting the pains in knees, ankle-joints, and muscles of thighs. Same pains in joints of upper extremities and below l. border of ribs, also in l. scapula. Frequent tearing in forehead and occiput. Repeated shooting in urethra also observed yesterday e. During e. the pains came in limbs, forehead, and occiput. At 9 p.m. all pains gone, n. good.—18th, 6.30 a.m., 7 grs. Soon heat in cheeks. Pressive pain in r. knee, ankle-joint, and elbow. Pressure on top of head and r. side of forehead over eye. Drawing pains in occiput and shoulders. Drawing in skin of whole outer surface of l. leg several times, 7 a.m. and later. Drawing in fingers, muscles of scapulæ, thighs, and r. cheek. Above pains in joints return. Drawing in calves. Frequent eructation of air with taste of drug, 8.30 a.m. Drawing in several finger-joints, back of wrist, and feet. Moving affected joints aggravates pain. These symptoms repeatedly. Tearing in r. temple. Shooting drawing pains in r. knee and above it, worse when walking. Much shooting in jerks, especially in joints of l. little finger, aggravated by movement. All d. when walking several of above pains. Pains less in e. At 6 p.m. severe pressure in wrist-joints and temples. Drawing in occiput, later in r. ankle-joint, repeatedly. At 8 p.m. severe drawing in lower incisors. Pressure in shoulders, dorsum of foot, and in joints formerly affected, but less severe.—19th, 6 a.m., after rising, pressure in forehead, drawing in muscles of r. forearm and muscles of l. cheek. Pressure on r. tibia and l. calf. Drawing and pressure on different parts of forehead. 7.30 a.m., 6 grs. Drawing in scapular muscles, toes, hands, nape, occiput, repeatedly. Pressure in knees and above them, in bones of foot when sitting, and in forehead. Great heat in cheeks 8 a.m., felt also externally; great heat in ears, which burn and are red, muscæ volitantes. Severe drawing on l. tibia. Pressure in and on r. side of sternum, in bones above forehead. Along with heat in face, cold hands and feet with chilliness in back, 8.30 a.m., continues till 9 a.m. Continued drawing in muscles of r. thigh, it then goes into knee and down to ankle-joint, where it causes pressure which extends into the knee, when sitting. The pains in lower extremities also when walking. Repetition of former symptoms. At 2 p.m., 7 grs. Besides above symptoms, pressure and drawing in bones of head, knees, and toes. At 2.30 p.m. heat in face, sinciput, ears, also externally in said parts. Shooting and itching in eyelids. The other

pains in joints, thorax, and dorsal muscles increase. Pressure in joint of r. big toe and above r. wrist on its back. Shooting in skin of r. forearm, 4 p.m. Along with continued heat of face and ears, and with warm hands, chilliness in back, 4 p.m. Soon after hands become ice-cold, the cold in back increases and continues, with slow pulse, continued pressive pains in joints of toes, hands, feet, and knees, shooting in tips of toes, in skin of r. axilla, on r. cheek. At 5 p.m. the cold in back begins to lessen and hands become warmer. Later the former symptoms recur. At 10.30 p.m. in bed, repeated severe pressure in r. wrist-joint and then in r. temple.—20th. The same pains and pressure in nape at 6 a.m. in bed, immediately after waking; after rising pressure in l. knee, then in r. tibia, then in l. ankle-joint when walking; on stooping severe shooting below l. scapula. Shooting in toes, pressure in muscles of scapulæ and in shoulder-joints, increased by moving, 7 a.m. Drawing in several parts of bones of head, in feet, forearms, alternately here and there, in wrist-joints, quickly jumping from one place to another, in dorsum of feet, in calves, in temples. Shooting in skin on outer surface of l. thigh. Numb pressure in temples and shoulders. Drawing in nape muscles. 7.30 a.m., 7 grs. Drawing pains in all finger-joints. Soon heat in face, burning in cheeks and ears, heat in nape and occiput, and constant obtuse pressure in region of lumbar vertebræ, and wandering pains in joints. Shooting in skin of forehead, of r. thigh, drawing in calves. Much eructation of air with taste of drug. Drawing and shooting round about l. ear, repeatedly. 8 a.m., muscæ volitantes. Drawing in r. side of lower jaw, 8.30 a.m., then in r. side of forehead. Drawing behind l. ear. Shooting in skin of l. cheek, then of r. Pressure under l. border of ribs anteriorly. At 9 a.m. hands begin to grow cold and there is chilliness in back, the pains continue uninterruptedly, now here, now there, with heat of head and face. Severe pressure in some dorsal vertebræ, 9 a.m. Some bruised pain in elbows and shoulder-joints. 3 p.m., 7 grs. The former symptoms repeated. Sometimes slight shoots in urethra. 3.30 p.m., heat in head, face, and ears, with external heat of these parts, muscæ volitantes. Pressure in forehead, drawing in l. side of lower jaw, in shoulders, fingers, toes, and their joints. Shooting and itching in borders of eyelids, 4 p.m. Drawing in muscles of legs. Shooting in tip of tongue and pressure in joint of lower jaw. Along with outward heat and pressure in head there occurred, about 5 p.m., a transient attack of confusion when sitting and reading, followed by recurrence of heat in head, but soon afterwards there was chilliness in back, whilst face, head, ears and hands were still hot, especially the heat in eyes and cheeks, with itching, pricking, and burning in eyelids, especially r. Then the coldness in back increased, went to arms and legs, hands became cold, a shivering through whole body, nails blue, much saliva in mouth, and occasional eructation with taste of drug. 5.30 p.m., uncomfortable feeling in pit of stomach like pressure, not exactly painful, crawling in skin of back, pressure and drawing in the above parts of limbs and head. The coldness lasted till 6 p.m., but the hands got warm. Chilliness and heat went off by 6.30 p m. Towards e. all the symptoms diminished.—21st., 7.30 a.m., 10 grs. The pains came on more severely, especially those in knees, shoulders, and bones of head. At 8 a.m. heat and burning in cheeks, with increase of former pains. At 8.30 a.m. coldness of hands with blue nails, with continuance of heat of face and head, visible twitching of r. lower eyelid, shooting in tip of tongue, pressure on sternum, chilliness in back, wandering pains. Pressure in l. ankle-joint for a long time while walking. 3 p.m., took 2 teaspoonfuls of an emulsion made with 1 drachm of asafœt. (quantity of excipient in emulsion not stated, hence dose of asaf. not given). Soon heat, not only in head but feeling of heat along back, and increase of the well-known pains, especially in feet, forehead, wrist-joints, knees; boring in r. inner canthus, pains worse when sitting than when walking. Drawing and shooting in calves, muscles of arms here and there, most in flexors. Pressure and weight in head. 4 p.m., 3 teaspoonfuls. Taste loathsome and scraping in mouth—cannot be got rid of. Constant flow of saliva. Chilliness in back, cold hands, drawing in muscles above knee. Pressure in thumb-joints. Feeling of hunger, longing for something strengthening and refreshing. Stronger and weaker flushes of heat in face, with cold hands, severe drawing and pressure here and there in muscles of r. thigh, weight and pressure in sinciput and forehead, cheeks and ears extremely hot, with chilliness in back, shooting in tongue. Pressure under l. border of ribs anteriorly. Hands alternately warm. Pressure here and there in thoracic walls and dorsal muscles. Some bruised pain in muscles of upper arm, then in wrist-joints,

ankle-joints, and very severe in some parts and some attacks. Frequent eructation of air with taste of drug and great flow of saliva. Drawing in finger-joints. Several times alternation of chilliness in back and cold hands with heat, whereby the head is always heavy and with pressive pain in it; slight movement in warm room causes immediately severe chilliness, 5 p.m. On walking up and down room several times there occur chilliness in back, cold feet, cold hands and blue nails. When walking about pressure in r. ankle-joint and up to calf. Smarting burning pain in tip of tongue several times, repeated later. Pressive pains, sometimes very severe, on both sides of spine in neighbourhood of short ribs, sometimes aggravated by moving body, repeated later. Urine darker than usual. Frequent burning in r. eyelids, drawing pains in joints of lower extremities, frequently. The fever went off at 5.30 p.m., and there remained only a feeling of heat. 6 p.m., 3 teaspoonfuls. Same symptoms as before. 9 p.m., 3 teaspoonfuls. Between 6 and 9 p.m., appetite not affected. In fact, during the proving hitherto there has been no disturbance of digestion or stool. After this 9 p.m. dose the same symptoms; among the others visible twitching in upper eyelid, burning in skin on outside of l. leg, the pains under border of l. ribs.—22nd, 6.30 a.m., some pain in knees, wrists, fingers, shoulders, pressure in forehead, or on l. side of back near short ribs. 7 a.m., 2 teaspoonfuls, which produced the diarrhœa of asaf. The well-known pains come on and leap from one part to another, heat in head and cheeks. 7.15 a.m., stronger pressure in occiput and forehead, on muscles of forearm, in wrists, in l. angle of lower jaw. No alteration in stools. 8.15 a.m., coldness as before with the pains in ankles, knees, elbows. Pressing asunder in both temples several times, often very severe. Drawing in toes. Severe wandering pains in occiput. The coldness lasts till 9 a.m. 11 a.m., nausea and hunger at same time. The former symptoms occur all d., are ameliorated in e., and are gone at n.—23rd, m., immediately after rising pains in knees, ankles, muscles of extremities—these not felt in bed. 7 a.m., 10 grs. asaf. dep. Soon the well-known pains increase. At 7.30 heat in head, face, and ears, muscæ volitantes. Increase of pains in finger-joints and nape muscles. 8 a.m., 12 grs. Very great heat of face and head along with the former pain, especially severe pressure in some dorsal vertebræ. Burning in border of r. eyelid, pressure on zygoma and in muscles of legs, burning in tip of tongue. 8.45, chilliness in back, cool hands, severe pressive pains in knees when walking. 9 a.m., 16 grs. For long time shooting and burning in end of urethra, but not when urinating. Whilst walking same pains as before. 2.30 p.m., 20 grs. 3 p.m., also 20 grs. Increase of heat and pains, especially in back about l. short ribs and in joints of legs. Severe pressure in knees and ankle-joints, when sitting. Pressure in frontal bone on different parts, sometimes along with shooting and burning pain. Bruised pain in lower limbs when sitting, especially in knees. Pressure in some toe-joints, in shoulder and elbow-joints. Shooting in tips of toes, pressure and drawing in calves. Severe pressure in small spots of skull, 5 p.m. Repetition of the same symptoms, especially drawing in r. tibia. 9 p.m., pains much abated, none at n.—24th, 5.30 a.m., after waking in bed tearing in r. shoulder and several times in l. tibia, after rising in l. ankle-joint, toes and finger-joints. Drawing in l. calf and l. chest. When stooping some pain behind near l. short ribs. Several times severe pressure in l. shoulder, wrist-joints, muscles of legs. Drawing and pressure in muscles and joints of arms.—25th. On rising the pressive drawing pains in joints of limbs, in skull, calves, muscles of arms, fingers, wrists return, weaker than yesterday; they occur both when moving and when at rest, more so in latter case. Drawing and pressure in facial bones, sometimes very violent.—26th. Some, but very slight symptoms.—27th, 7 a.m., ʒss. of asaf. In ¼ h. the heat in head, face, back, and the well-known pains in limbs recommence. 7.30, another ʒss. Among other symptoms especially severe pressure and asunder-pressing in temples, continued. Constant pressure behind near l. short ribs, 8.30 a.m. About 9 a.m. there began chilliness in back, coldness of hands with constant heat of head and face, shivering through limbs. Pressure in frontal bone for several h., and in maxillary joint. Heaviness in forehead and sinciput lasts all d. 3 p.m., ʒss, and 3.30 p.m. another ʒss. Former symptoms repeated. In n. and next m. on rising some pains in joints and skull.—28th, 7 a.m., ʒss, and the same at 7.15 a.m. Repetition of former symptoms.—29th. Several symptoms, but rarer and weaker, especially drawing and pressure in knees, ankle-joints, skull bones, muscles of limbs, wrists, tibiæ. On 30th all symptoms gone. (*N. Z. f. Hom. Klin.*, xiii, 129.)

3. GÜNTZ, on March 31st, 1824, took 1 gr. in pill-form at 9 a.m. On April 7th, at 9 a.m., took 5 grs., followed at 5 p.m. by pressing pain in cardiac region, as if from over-filling and distension of heart, lasting, with brief intervals, ½ h. and accompanied by smaller pulse; at 8 p.m. 1 loose stool. On April 9th, after 6 grs., felt occasional rumbling in bowels. Same result followed a 10 gr. dose. On April 17th, at 9 a.m., took 15 grs. Towards e. and next d. in forenoon had slight nausea, as if from an empty stomach, with distaste for food. By midday both symptoms had disappeared. (JÖRG, *op. cit.*)

4. LIPPERT on March 29th, 1824, at 9 a.m., took 1 gr. Towards 10 a.m. confusion of head came on, changing gradually into heavy pain as if whole brain were pressed together; this was accompanied by giddiness, warmth of skin, and accelerated circulation. These lasted till towards 4 p.m. At 5 p.m. frequent foul-smelling eructations set in, ceasing only next m. at 9 a.m., after abundant, soft, brown, foul-smelling evacuation. On March 30th, at 9 a.m., took 2 grs. At 10 a.m. felt pressing sensation at epigastrium, at 5 p.m. slight transient giddiness. No stool passed this d. Next m. was seized with confusion of head, increasing gradually to actual pain, which kept coming and going periodically until late at n. On April 1st, after much straining, passed a copious hard stool. Repeated same dose on 2nd with same result, except that stool next m. was inclined to be loose. On this d. too (3rd) in e. considerable headache came on. Sleep was not disturbed, but on 4th pain was still there and lasted all d. with varying intensity, but never ceasing entirely. After doses of 4 and 6 grs., experienced only belching and confusion of head. After latter dose, bowels acted several times during d., but were not actually relaxed; much flatus was also evacuated. Similar results followed dose of 8 grs., except that bowels remained confined until next m., when a semi-relaxed stool was passed. After 10 grs. taken, April 10th, at 9 a.m., head remained quite clear; usual belchings occurred during afternoon, and next d. two diarrhœic stools were passed. Same effects followed dose of 12 grs. (*Ibid.*)

5. OTTO took 2 grs. on March 19th, 1824, at 9 a.m. After ½ h., pressing pains in occiput came on, spreading gradually over whole head, and causing sensation as of brain being surrounded and pressed together by a cloth. Whilst this symptom increased, thorax was seized with spasmodic contraction, in consequence of which it seemed as if lungs could not expand completely, although respiration was meanwhile normal. These symptoms disappeared gradually after 1½ h., first head and then chest becoming quite free. 20th, 9 a.m., took 3 grs. After ½ h., constrictive pain in head came on, but less than yesterday; on other hand, constriction of chest was increased so that pulse was small, contracted, and irregular, beating only 60 instead of 65 per m. After 2 h., symptoms began to pass off; pulse, however, was nearly 4 h. in resuming ordinary rate. During d., before and during micturition, drawing in glans penis was felt several times. 22nd, 9 a.m., took 4 grs. After ½ h., unpleasant taste, soon passing on to nausea, set in. At 10 a.m. came on gentle pressing and drawing pain in region of cardia, spreading first towards spleen and later towards liver, and aggravated by pressing diaphragm downwards, preceded by considerable rumbling in intestines and a few eructations, and accompanied also by previous contraction of chest and acceleration of respiration, although to a moderate extent; pulse meanwhile being more rapid and smaller than usual. These symptoms disappeared during afternoon, but evacuations later on were soft and yellowish, containing less bile than usual, but without any odour of drug. 23rd, 9 a.m., took 5 grs. with same results, only that bowels did not act till next d., when motion was firm, dark brown, and smelt not unlike drug. In chest only slight drawing was felt, respiration being only slightly accelerated, and pulse smaller, quicker, and more contracted than usual. Head during afternoon was confused and seized with pressing pains, as if a cord were tied tightly round brain. Towards e., drawing in glans penis came on; urine was dark brown, easily passed, and deposited no sediment, but had rather strong and pungent smell. 24th, 8.30 a.m., took 6 grs. Rumbling in intestines, and increased warmth and pressing in gastric region soon followed; last-mentioned this time to greater extent, spreading less to l. side and not at all to r., but ascending more upwards into œsophagus, and causing sensation as of foreign body rising. These symptoms ceased at noon, but abdomen remained distended, although neither wind nor fæces passed this d. Contraction of chest lasted from 10 till 12, and was accompanied by quickened pulse and respiration, former being small

and contracted. During afternoon drawing in glans penis was more evident than from previous doses, and kept coming and going although micturition was unaffected, except that urine had strong pungent odour. At 8 p.m., was suddenly seized with giddiness and dimness of vision. Shortly afterwards cold sweat broke out on forehead and extremities, with cutting pains in abdomen so severe as to oblige him to go to bed; here symptoms moderated, but lasted fully an h. Stool next m. was firm, dark brown, and smelt of drug. Took 8 grs. on 26th, at 9 a.m. After 2½ h., nauseous taste in mouth came on, which soon changed to that of onions, lasting nearly whole d., pulse and beat of heart being meanwhile small, quick, and irregular. Chest symptoms were slighter than usual. Towards midday, rumbling in intestines came on, becoming gradually more marked, and changing during early afternoon to pressing in stomach. At same time spasmodic constriction of chest, coupled with dry irritating cough, caused by tickling in windpipe, was felt. When former had lasted ½ h., O— felt slight rigor reaching from last dorsal to 2nd lumbar vertebra, but not beyond this point. After rigor ceased, pressure in stomach came on, changing later to stretching pain, and spreading to r. and l., and increased by pressing diaphragm downwards, or if gastric region was touched externally. Pulse as in forenoon was small and quick. When these thoracic and abdominal symptoms had lasted nearly 3 h., general *malaise* came on gradually. Constriction of chest increased to anguish, respiration became impeded, causing general restlessness, which compelled him to go hither and thither. Head meanwhile felt muddled, and thinking difficult. Felt also mentally restless, and unable to keep to one subject. From time to time rigors spread over whole body, but without subsequent heat. These symptoms were much relieved by an hour's walk in open air, but had not disappeared at 10 p.m. Abdomen remained distended during afternoon and e., because neither fæces nor wind were evacuated. On other hand, during e. was troubled with feeling as of substance rising from stomach through œsophagus into pharynx, causing him to swallow frequently; this relieved him, but only temporarily. Urine was lighter than from previous doses, but smelt as before. Next m., on awaking, noticed head muddled, very slight constriction of thorax, with somewhat quicker cardiac and arterial pulse, gentle pressure in gastric region, becoming worse after a little time, and fulness and distension of abdomen. Bowels acted before 7 a.m., motion being small and yellowish brown, consistent at first and then pappy and soft, smelling not unlike drug. These symptoms gradually disappeared, muddled condition of head lasting longest (till e.). From this dose appetite was decidedly diminished. After 9 grs., early symptoms were much as before. Shortly after 1 p.m., chest became so constricted that it appeared as if same were squeezed by heavy body lying on sternum. Respiration and pulse were affected as before, with occasional coughing and yawning. Coupled with these thoracic symptoms felt congestion towards head, face became hot, and head began to ache. Feeling came on in eyes as of grains of sand between eyeball and lids, and as if cool wind were blowing upon eyes from without, pupils meanwhile being unusually dilated; at same time peculiar drawing developed in articulations of lower jaw, changing to moderate pain; this soon abated, but was repeated once during e. Other symptoms were same as from last experiment, but milder. After quiet n., awoke with slight pressing headache and distension of abdomen; both vanished after bowels acted at 7 a.m. After dose of 10 grs., all these symptoms were repeated with addition of scraping feeling in œsophagus. At 4 p.m., abdomen became unusually distended. Bowels acted shortly afterwards, excreta being hard, dark brown, and foul smelling, and gave pain at anus in passing; after a while this relieved distension of abdomen; latter was distended from time to time, but was relieved by passage of flatus. All symptoms gradually decreased until towards 8 p.m., when all reappeared; headache spread this time from l. frontal region over whole head, and pains in jaws spread to muscles of neck. Condition reached its worst at 11 p.m., then moderating rapidly, so that by 12 nearly all symptoms had ceased. After restless n., felt some confusion and pressing pain in head on awaking, with considerable distension of abdomen and very moderate feeling of constriction of chest. Soon after rising had dark brown, soft, yeasty, and foul-smelling stool. All symptoms had vanished by midday. Repetition of dose was followed by same symptoms. Next m. remarked constriction of chest, quickened respiration and pulse, and distension of abdomen. At 9 a.m., pressure in stomach came on again, and distension of abdomen became very troublesome. During m., felt drawing and tearing pains in neck,

extending from occiput down neck to arms, resembling rheumatic pains. Urine had pungent and ammoniacal odour. (*Ibid.*)

6. PIENITZ took 1 gr. on March 18th, 1825, at 9 a.m. Next d., at 8 a.m., was seized with sharp colicky pains in abdomen, with rumbling in intestines, distension of abdomen and loss of appetite, followed by three watery stools. Coupled with these were heaviness and confusion of head, with pressing pain spreading over whole head. Pulse was small and less frequent, skin cold and dry. By midday these symptoms had entirely ceased. After 2 grs., noticed no ill-effects until next d., when he had four watery evacuations, without pain, but with much passage of flatus downwards, in spite of which abdomen remained distended during whole d. Pulse was meanwhile small and frequent. After 3 grs., felt nothing till next d., when two soft evacuations and much flatus passed, without pain in abdominal organs. Had, however, feeling of heaviness and fulness in abdomen lasting till midday. Pulse was small, weak, and somewhat frequent. On April 15th, at 9 a.m., took 4 grs. At 11 a.m., felt trembling over whole body, skin being cold, and pulse small and weak. At midday had no appetite. In afternoon felt two transient stitches, one after another, in head, commencing in forehead and extending to occiput, leaving confusion of head, lasting under ½ h., and accompanied by slight acceleration of pulse. Next m. had two liquid stools, followed by rumbling in intestines, heaviness and distension of same, lasting till midday. Next d. had three liquid stools with acute pressing pain towards rectum. After 6 grs., bowels acted twice towards e., evacuations being yeasty; same thing occurred on following d. During same d. that this dose was taken, genitals remained for several hours in excited condition. (*Ibid.*)

7. SIEBENHAAR took 1 gr. on March 26th, at 9 a.m. This was followed by rumbling and gurgling in abdomen. After 2 grs., noticed same symptoms, with confusion of head and full and quick pulse, lasting till towards e. Same results followed 3 grs., with addition of actual pain, especially in region of stomach. All symptoms only lasted till towards e. Dose of 4 grs. was followed successively by following effects: Heaviness and confusion of head; peculiar pressing feeling in chest, relieved after mucous expectoration; bellyache with active movements and rumbling in intestines; some loss of appetite at midday; persistent inclination to go to stool, followed either by hard fæces or nothing at all; full and quick pulse; and general malaise. These symptoms lasted nearly whole d. to same extent. After 5 grs., felt same effects, but more intensely. On rising next m., felt very marked nausea and great inclination to vomit; latter remained undiminished after breakfast (of bread and butter) and he felt quite out of sorts generally. Both symptoms lasted till midday, and instead of appetite for dinner he felt considerable urging to vomit. No vomiting occurred, but frequent belching of foul-tasting flatus. At 1 p.m., nausea abated, and condition improved generally. After walking for 2 h. in open air during afternoon perceived a peculiar affection of genitals, in consequence of which testicles became painful, especially to touch or on movement, lasting ½ h. (*Ibid.*)

8. JÖRG, on March 31st, at 9 a.m., took 1 gr. After ½ h. cutting in umbilical region came on, increased on sitting down and pressing abdomen, and lasting till e.; coupled with this felt peculiar movements in stomach and in oral cavity, spasmodic contractions of former alternating with increasing nausea and inclination to vomit, appearing frequently as if peristaltic movements of intestines were inclined to become reversed, and as if this inclination had been already communicated to gullet; no vomiting followed, but, after much urging to stool, passed four evacuations of hard or pappy fæces. Abdomen remained distended all rest of d. in spite of frequent passage of flatus. Next m. woke with same inclination to go to stool, but bowels did not open all d. After 1½ grs. felt again cutting in umbilical region, lasting as before, and along with this several transient stitches in and under frontal bone, and later pressing and burning under sternum with frequent irritation and cough. Taste was after 1 h. better, became after 2 h. foul and acrid, with slight nausea. After 2 h. distension of intestinal canal came on, with same apparent reversal of peristaltic action, lasting with occasional intermissions till late in e., former being worse in afternoon and e., apparently from fact that after constant attempts to evacuate bowel only small, dry, hard fæces were passed. Next d. had repeated cutting in umbilical region with distension of abdomen, and persistent constipation in spite of constant urging to stool; pains like spasms at stomach, and a feeling kept coming and going as if gums were raw. Constipation lasted all next d. On April 5th, at 9 a.m., took 2 grs.

Very shortly felt severe cutting pains in abdomen, burning in region of stomach and diaphragm, distension of abdomen and frequent urging to stool, very little hard or soft fæces being passed. Simultaneously felt confusion of head with frequent stitches in frontal and temporal regions, lasting till nearly midday. During fore- and afternoon had same feeling of reversed peristaltic movement of bowels, and feeling of urging in gullet from stomach towards mouth. During afternoon rheumatic pains came on in upper and lower extremities, in region of scapulæ, but more especially in joints, situation changing at times, lasting till e. During e. noticed rancid fatty taste in mouth. Next d. noticed same symptoms as from previous doses, with irritable condition of gullet and taste in mouth as if he had eaten and drunk too much the d. before. Appetite during d. was lessened, and in e. felt very tired and sleepy. (*Ibid.*)

9. Frau CH., after 1 gr., felt slight cutting in umbilical region, with mild pressing headache, especially in forehead. After 1½ grs., besides above symptoms had troublesome dryness in gullet without thirst and constant urging to stool although constipated. After 2 grs. early symptoms were same as before. Later on had waterbrash several times and occasional cutting pains in abdomen. Next d. felt nearly all d. pressure in stomach, pressing pain in forehead, and dryness in gullet. Had constant but fruitless urging to stool. July 28th, 8 a.m., took 2½ grs. After 5 m. felt burning in gullet, after ½ h. burning in stomach. After 1½ h. felt pressing headache, especially in r. half; and after 2 h. acute labour-like pain in region of uterus, lasting 5 m., and recurring twice within 1 h. During afternoon and e. felt great lassitude and weariness with desire for sleep. Burning in throat and stomach lasted all next d., changing into dryness, without thirst. lasting till 3rd d. Bowels remained constipated. Took 3 grs. at 8 a.m. Felt immediately burning in gullet and stomach. After 1 h. felt pressing headache, especially in forehead, with small and quickened pulse (10 beats per m. above normal). This state of pulse moderated towards midday, and ceased towards 3 p.m. After 4 p.m. had several attacks of above-mentioned uterine pains. Burning and pressing in stomach lasted till next d., when they were replaced by dryness in gullet and sensitive pressing pain in stomach; this alternation continued till 4th d., experimenter meanwhile complaining each d. of great lassitude towards e. Bowels remained constipated. After 24 h. catamenia appeared, 10 d. before usual time; flow was very scanty for 3 d., later became natural. (*Ibid.*)

10. L— took 2½ grs. on July 28th, at 9 a.m. Felt pressure at stomach lasting whole d. with heaviness and confusion of head, changing towards e. to troublesome weariness. Heaviness of head frequently amounted to veritable pressure over eyes, as if from great sleepiness. Same symptoms followed dose of 3 grs., pressure at stomach appearing also next d., lasting all forenoon.

11. TH., after 3 grs. taken at 8 a.m., felt pressing headache, especially in forehead, burning in throat, pressure in stomach, and heaviness in whole body, all symptoms except last vanishing before 4 p.m. (*Ibid.*)

12. EDUARD JÖRG took 2½ grs. on July 28th, at 8 a.m. After ½ h. felt pressing and cutting pains in stomach and abdomen, lasting till midday; confusion of head proceeding from l. half of vertex, changing to pressure towards eyes lasting with varying intensity till midday. After 3 grs. felt same pressure at stomach lasting 3 h., and simultaneously confusion of head, changing at noon to vertigo. (*Ibid.*)

13. THEODOR JÖRG, on July 28th, at 9 a.m., took 2½ grs. After 1 h. felt transient stabbing in l. thorax; after 2 h. pressing headache, especially in forehead and over eyes, together with dryness in mouth. After 3 grs., felt after ¾ h. pressure at stomach; after 1 h. pressing headache descending towards eyes and nose, lasting 4 h. Pressure in stomach was associated with much grumbling and rumbling in abdomen, passing off late in the e. with abundant passage of flatus downwards. (*Ibid.*)

II. *Poisonings.*—1. "In the very frequent employment I have made of asafœtida as a plaster on the abdomen, I have seen in men undoubted swelling of testicles, and in women inflammation and great swelling of genitals; a short time ago this happened to such a great degree in a woman at Bergen that I had to treat her antiphlogistically. Although the woman was 50 years old, and the catamenia had long ceased, her breasts swelled as much and secreted a milky fluid as though she was in the 9th month of pregnancy." (BOAS, *Casper's med. Wochensch.*, No. 51, p. 832. 1841.)

2. JAHN reports nymphomania as occurring in a full-blooded woman after taking strong doses of asaf. (*Mat. Med.*, i, 423.)

ASARUM.

Asarum europæum, L.; Asarabacca, Hazelwort. A. canadense, ; wild ginger. Nat. Ord., *Aristolochiaceæ*.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iii of original, vol. i of translation. Contains 270 symptoms from self and four others, obtained from A. europæum.

2. Several years ago I attempted to prove the effect of the A. canadense on some women students, but the daily records were not properly written up, and the following fragmentary observations are all I have. They reveal, however, the general character of the drug. They were noted while taking the tincture in doses varying from ♃j to ℥ss per diem, which were continued over a period of about 2 months. On taking dose it caused burning and smarting in mouth, this being followed by a cold sensation from the secretion of a quantity of tenacious mucus. Nausea with inclination to vomit followed, and vomiting of some fluid occurred in one case. Considerable flatus was produced in both stomach and bowels, and this was followed by loose, light-coloured stools. The bladder was much irritated, causing very frequent urging, although character of urine did not seem to be changed. The menses appeared several d. sooner than expected, and were much too free, rather dark in colour, and painful. During the provings most of the experimenters were excessively nervous, with dull stupid feeling during d., and restless sleep at n. After a few d. they suffered much from chilliness, as if insufficiently clothed, but did not seem to have any fever or any unusual thirst. There was muscular twitching in various parts of the body, as if cramps were setting in; but this did not occasion much inconvenience. (G. W. WINTERBURN, M.D., *Amer. Hom.*, April, 1883.)

ASCLEPIAS.

Asclèpias Cornùti, Decaisne, *syrìaca*, L.; milk-weed, silk-weed. *A. tuberòsa*, L.; butterfly-weed, pleurisy root. Nat. Ord., *Asclepiadaceæ*.

Asclepias syriaca. I. *Provings.*—1 *a.* Dr. CLERBORNE took wineglassful of infusion of dried root 3 times a d. for 5 d., without effect save slight nausea, and increased flow of pale urine, of lighter sp. gr. than usual. On taking same 4 or 5 times daily there was also vomiting and ardor urinæ. Infusion of fresh root proved still more active in same direction.

b. Of inspissated juice of fresh herb he took 3 times daily 3 grs., increasing dose up to 5 grs., when he had to desist on account of excessive nausea, tickling in fauces, and violent headache chiefly between eyes.

c. Of fluid extract of dried root, each ♃j representing ℥j, he took, July 24th, 10 drs. without effect. On 25th, 9 a.m., 13 drs.; at noon 10 drs. more, followed by decided diuresis. 26th.—20 dr. at 11 a.m. and 2 p.m. caused same, with dizziness for 2 h., and tickling in fauces. 27th.—30 drs. at 11, and 20 at 2; diuresis, tickling at end of penis, uneasiness at stomach, severe headache, quick (92) full pulse. 28th.—Awoke with severe headache, and disagreeable feeling at stomach. Omitted med. for 2 d. 30th.—At noon 35 drs., and at 3 p.m. 15 drs., after which nausea, inclination to stool, slight colic, and diuresis. At 8 p.m. copious evacuation, brown and soft, with slight griping; pulse 98, heart's action sensibly increased. 31st.—40 drs. at 11 a.m. produced vomiting, leaving system much relaxed and pulse frequent and feeble. Aug. 2nd.—30 drs. at 10 a.m. and 12.30 p.m. Again vomiting, severe and long-continued, leaving sense of rawness in stomach and slight pain, coldness of surface, feeble pulse, and feeling as if some sharp instrument were thrust through from one temple to the other. 3rd.—At 9 a.m. 20 drs. At noon soft yellowish stool; appetite much increased. He continued taking fl. extr. until nearly ℥ij were ingested daily. He gives no further daily record, but states his symptoms to have been,—violent vomiting, with retching; burning and tickling sensations in fauces and throat; stomach feeling painful and raw; increased secretion of bile, leading to copious fluid yellowish stools,

with some griping pain and excoriation at anus; headache, constrictive across forehead, or between eyes; hunger even soon after a hearty meal. (*Amer. Journ. of Med. Sc.*, vol. xlii.)

2. Dr. POTTER took, during about 6 d., full doses of cold and warm infusion, and of tincture, of root. First proved diuretic, second diaphoretic, third caused headache and drowsiness. All increased bronchial secretion. For 3 d. preceding experiment his urine averaged 35 oz. per diem; sp. gr. was 1019; solid matter 568 grs. Pulse was 68. On 1st d. of proving (cold infusion) urine was 128 oz.; sp. gr. 1020; solid matter 600 grs.; pulse 67. On 2nd d. there was but a small increase of water; sp. gr. and solid matter same; pulse 66. On 3rd d. quantity 139 oz., sp. gr. 1019; solid matter 608 grs.; pulse 63. On 4th, 5th, and 6th d. quantity averaged 135 oz. per diem, solid matter 700 grs.; pulse 60. (*Tilden's Journ. of Mat. Med.*, vol. i.)

3. Same gave to a young healthy man, at 9 p.m. in bed, ʒiij of warm infusion. In ½ h. sweating began, which in 1 h. was profuse; and, infusion being repeated every 2 h., continued all n. Effect on brain was agreeable at first; afterwards somewhat soporific. Same occurred following n. On 3rd d. saturated tinct. of dry root was commenced, ʒj every 3 h. during d., and continued for 4 d. After 2nd dose (8 p.m.) he felt in 1 h. some dizziness and headache; slept soundly, with moist skin, and passed 4 oz. more urine than usual next m. After the 4th d. little relish for food; appeared dull and stupid; bowels acted oftener than usual; tongue white furred; pulse (normally 75) 64. In a few d. he was in his usual health. (*Ibid.*)

Asclepias tuberosa. I. *Provings.*—1. Dr. THOS. NICHOL, æt. 34, strong, sanguine temp.; accustomed to proving, and susceptible to drugs. Nov. 9th, 1865, in excellent health, took at 11.45 a.m. 20 drops 1st dec. dil. tinct. of root; in 15 m. dry cough with constriction of throat; at 12, feeling of warmth in chest, with dull pain at base of both lungs, with feeling of tightness. At 12.30 p.m. sharp pains shooting from left nipple downward, with stiffness of left side of neck. Pulse was 64 at commencement of proving, is now 88 and small. Warmth of skin. At 3 p.m. 30 drops 1st dec. dil.; at 3.30 return of pain beneath left nipple, with palpitation of heart. Throughout e. pains kept increasing, making respiration painful, especially at base of l. lung, which is dull on percussion, while cough is dry and spasmodic. At 10 p.m. 40 drops 1st. dec. dil. Was awake about 4 a.m., found pain increased and cough worse. Towards e. unusual elevation of spirits. Nov. 10th.—40 drops at 11 a.m. At 12 m. dull aching headache in forehead and vertex, aggravated by motion and relieved by lying down. At 12.25 p.m. rumbling and uneasiness in bowels with feeling of heat in umbilical region. Headache presses deeply on base of skull, and is very similar to the ipec. headache. Itching of skin of thighs, though no eruption visible. At 4.30 p.m. pain moved up to behind sternum and became more sharp and cutting; aggravated by drawing long breath and by motion of hands as in triturating. Chilly, with cold feet, though room was warm. At 5 p.m. 40 drops. Singing or loud speaking aggravates thoracic pain. At 10 p.m. 40 drops. Nov. 11th, at 9.30 p.m., 50 drops. Swimming of head with dulness behind forehead. Continued itching of thighs and nates. Cough continues dry and harsh, and coughing causes pain in forehead and abdomen. Pain in lungs relieved by bending forward. Spaces between ribs close to sternum are tender on pressure, and pain, which is quick, darting, and more acute than at first, shoots over to r. side. At noon pain was shooting up to l. shoulder, which was painful in motion. At 9 p.m. cheerful mood changed, and, without any exterior cause, became fretful and peevish. Nov. 12th.—Uneasy sleep during first part of preceding night, with frightful dreams, which awoke him at 3 a.m. Found pain of l. lung had abated, and left feeling of weariness, though pain returned on coughing or drawing deep inspiration. Pain is now very acute on r. side, and seems seated in pleura. Cough dry and hacking, though a little mucus is raised with great effort. 9 a.m., head feels dull and gloomy; sharp shooting pains in r. shoulder. 10 p.m., 20 drops ϕ. At 4 p.m. pressing pain in bowels and emission of fœtid flatulence. At 5 p.m. pressive pain in stomach, with rumbling in bowels. Languor and disinclination for work. Awoke 3 a.m. by rumbling in bowels, accompanied by sharp cutting pains; felt tranquil and calm, though pain very severe. Nov. 13th.—Soft and fœtid stool at 11 a.m., preceded by rumbling in bowels. Thoracic pains easier to-day, though still felt in region of diaphragm and on motion. At 4 p.m. 30 drops ϕ. At 5 p.m. another stool similar to that in morning; this is an unusual occurrence. At 11 p.m. urging to stool. Slept all night, but gloomy and frightful dreams. On

awaking at 6 a.m. rumbling in bowels with soreness of peritoneum; dull pain on pressure. Nov. 14th, at 7 a.m., 40 drops of 1st dec. dil., as I had noted more decided symptoms from it than from mother tincture. Languid and dull all d., both in body and mind. Felt precisely as if recovering from long, severe sickness. Appetite deficient, disagreeable feeling of weight at stomach. Nov. 15th.—Aching pains in knees, and driving pains in thighs, and feel still more languid than on preceding d. Slept all n. till 5 a.m., when I was awoke by frightful dreams, which had haunted me all n. Chest feels weak and sore, without cough, though no pain felt on drawing long breath. (HALE, *New Remedies*, 2nd ed.)

ASPARAGUS.

Aspáragus officinalis, L. Nat. Ord., *Liliàceæ*.

I. *Provings*.—1. *a*.—N— (1st proving), a man, æt. 26. 24th March, 11 a.m., 30 drops tincture. Soon dizziness in sinciput, later, pressure in temples, mostly l. Pulsations of heart, felt and heard, also when moving moderately. Increased secretion of saliva. 3 p.m., 60 drops. Increased heat of face, slight vertigo, drowsiness, and yawning, shooting on r. side of glans penis. Scanty straw-coloured urine that immediately after being passed becomes turbid and full of white dust; after 4 h. a white flaky sediment is deposited and the urine becomes clear. After the urine had been poured out and the glass rinsed with water a distinct fatty deposit appeared on the sides of the glass. Eructation; wind in stomach. Pressure on forehead with confusion of sinciput; burning of cheeks, frequent scanty discharge of urine, preceded by sensation of something sticking in urethra, at same time slight burning. Urging to urinate. Increased thirst. Increased acuteness of vision.—23rd. On waking and stretching himself severe cramp-pain in r. calf so that he could have cried out, relieved by rubbing, but all d. the r. leg remained weak. 7 a.m., 70 drops. Urine has a peculiar smell. Excitement and increase of sexual desire. Discharge of much flatus. Hawking and irritation to cough, the mucus will not come away. Fits of coughing with retching. From 1 h. after breakfast, cough relieved. Oppression of chest. Drowsiness and yawning. Full feeling of abdomen. Increased heat. Urine clear, but smells badly. 2.30 p.m., 20 drops. Pressing in both temples, increased by pressing on them. Weight of sinciput. The urine passed at 4 p.m. was again turbid, afterwards it cleared, but deposited a white flaky sediment.—24th, 7 a.m., 100, 8 a.m., 50 drops. Even before taking it slight threatenings of cramp in calves. Exhausting cough with oppression of chest, much mucus expectorated. Exhausting cough causing him to vomit and brought the water into his eyes. Sweetish flat taste. Almost constant hawking and rough feeling in throat. Pressure in chest after breakfast. Shooting in left side of chest on inspiring, which was only very slight yesterday afternoon, came on to-day very distinctly, but does not last long. When sitting shoot through the back in region of lumbar vertebræ. When coughing retching. Pinching in umbilical region, which is painful to touch. 1½ h. after dinner, urine again turbid but not dark, with fine dust, which becomes more distinct on diluting the urine with distilled water. Urine smells as before. The urine that has stood during the n. makes a reddish deposit on walls of vessel. Stool, afternoon, not copious (accustomed to a stool every m.). E., twitching in belly below navel. Tightness of chest, especially when writing. 10 p.m., before falling asleep drawing in a toe on l. foot which had been wounded when he was a boy. 5 a.m., wakes with nausea, thereafter vomits 4 times what he had eaten for supper, with bile and much slime, thereafter bilious, feculent diarrhœa; a ¼ h. later recurrence of the vomiting with more oppression. The urine more turbid than before. Dislocation-pain when walking, forenoon, on neck of l. femur, preventing quick walking and making him limp.—26th, 7 a.m., 60 drops. Cheerfulness all d. The dislocation-pain when walking comes again. Inclination to hawk and cough less than 2 d. ago. Slight feeling of shooting in cardiac region after dinner. Palpitation of heart with anxious restlessness, increased by movement and going upstairs. 2 p.m., 20 drops. 4 p.m., pain at the top of sacrum. Pressure in chest, tension on inspiring. Feeling as if chest were hollow, with external pressure on it.—27th, 7 a.m., 200 drops. Coppery taste. Inclination to hawk or cough coming from deep down in throat; the mucus easily detached at every cough. Bruised pain

of muscles on middle of thigh rendering walking difficult, especially when going downstairs. On touching the part sore pain. R. lower extremity suffers more than l. When sitting sudden shoot through r. thorax making him jump (10 a.m.).—28th, 7 a.m., 80 drops. Most of the symptoms aggravated by movement, frequent palpitation of heart; oppression of chest, tension on inspiring increased, threatenings of pains in lumbar region all afternoon, so that he must often bend the chest forwards and head backwards in order to get relief. Later in e., shooting at first above the r., then above the l. side of l. knee when sitting.—29th, 6 a.m., 250 drops. Rheumatic pain in r. shoulder, burning in urethra, hawking of mucus, fatiguing cough with inclination to tussiculation, retching on attempting to cough so that the water comes into eyes. 8 a.m., 200 drops. Heart's beats scarcely can be felt, pulse small, easily compressed. Abdomen swollen. Sore pain in upper surface of thigh when touched, or on flexing the limb at knee- and hip-joint, for 3 d., which renders walking difficult. R. limb weaker than l. Giddy in sinciput. Palpitation of heart all d., especially after moving. Urinary secretion somewhat increased. In afternoon the urine again contains appearance of dust particles. Towards e. some cough. Pain in shoulder when touched. Rheumatic pains betwixt scapulæ.

b. (2nd proving). Took doses of from 30 to 40 drops of same tincture, which caused irregular, double heart's beats. Pulse when sitting quickened. Palpitation when sitting, so that the leaves of a book he holds in his hands tremble. Diminished urinary secretion. Urine dark coloured without sediment, after urinating burning in urethra with a feeling as if the urine were still flowing. Yawning, drowsiness in m., pricks and creeping in eyes, pressure of brain against eyes. A carious molar becomes hollow and breaks off without pain. (BUCHNER, *Hygea*, xii, 426.)

2. ST., a healthy man, æt. 25, blond and thin, sneezed much on smelling the tincture; 20 drops caused no particular effect. One m. he took 40 drops. Confusion of head and a giddy staggering, cutting and burning in urethra, dysuria, at same time drawing pains in both groins, pains in abdomen, with bilious diarrhœa, burning and sore pain in anus. Next forenoon he took 30 drops, when he observed: tickling and irritation to cough; mucus expectorated with difficulty. Dyspnœa on moving or on going upstairs. Must sit up in bed at n. in order to breathe more easily. Next d. 6 drops. Peculiar anxiety with palpitation and crossness. On inspiring, shooting in several parts of chest, especially under l. scapula. Much viscid mucus from throat. Urging to urinate, urine smells strongly. Saliva sweet, as though mixed with blood. (*Ibid.*)

3. A girl of 20, who had the menses regularly for 3 d., got on the 2nd d. of her menstruation in the e. 60 drops, and the same dose next m. The menses lasted a d. longer than usual. (*Ibid.*)

4. M—, 27 years old, subject to rheumatism, took 8th Aug., 1840, 100 drops tincture. Slight bitter sweet taste on tongue. Coryza, with commencing dryness and slight swelling of nasal cavity, the passage of air through it obstructed. Slight pressure in forehead. Violent coryza with copious secretion of thin whitish fluid from l. nostril. Frequent sneezing. Slight febrile state with dull drowsiness at 3 p.m. Violent coryza with pressive pain from root of nose to sinciput. Frequent micturition with pinpricks in orifice of urethra.—9th, m., 200 drops. After 9 a.m. commencing dry coryza with discharge as yesterday. Speaks through nose. Loss of smell, violent sneezing. Frequent emission of urine, followed by violent stitches at orifice of urethra. Swelling of penis with erections and urging to urine. Diminished secretion of saliva.—10th, m., 100 drops. Coryza with thin whitish mucus from r. nostril. Confusion of sinciput. Violent stitches in orifice of urethra after frequent urination. Slight chilliness with drowsiness. Peculiar urging to stool and difficult evacuation of the hard fæces. Itching in anus.—11th, 400 drops. Dry coryza with obstruction of air, otherwise little remarkable. On leaving off the secretion of saliva became more copious, and he had frequent spitting of blood. (IBID., *A. H. Z.*, xx, 265.)

ASTERIAS.

Astèrias rubens, uraster rubens. Common star-fish. Nat. ord., *Radiatæ.*

I. *Provings.*—1. PETROZ. (No information given save list of provers.)

Mad. B—. On 1st d., obtuse shoots in front of thigh. On 2nd d., shooting pain in r. temple; dulness of hearing, most marked on r. side. On 3rd d., face red and puffy; swelling of tongue; colic, followed by diarrhœa; when upright, weakness of legs, to degree of needing help in walking; much heat in head, then in all body, desire for cold drinks and to feel cold within and without. On 4th d., face still red; liquid brown stool, expelled with force; shooting pain to r. and l. of lower sternum, of short duration, relieved by bending backwards. On 5th d., tongue not free to use, repugnance to speech; saliva more copious than usual; irritation of throat, already experienced, now becomes more sensible. On 6th d., throat dry. On 7th d., dull expression, something stupid about attitude and look. On 9th d., burning dartings in great trochanter and l. coxo-femoral joint, going like lightning down to outer hamstrings. On 10th d., attacks of vertigo; heat of skin, fever towards m., chill, heat followed by cold. Without date,—drawing pain in tongue. (*Journ. de la Soc. Gall.*, i, 225.)

2. Madlle. M—. On 1st d., head hot, surrounding air seems hot; eyes hot; constipation, fruitless desire for stool, symptom she had never had; fulness of head, which seems to distend at sides. On 2nd d., sadness alternating with almost unbearable cerebral excitement, desire to undertake any intellectual or physical work, to walk, or do any violent exercise, a state not at all like drunkenness from intoxicants, is more a moral drunkenness; fulness as of congestion in head, and even at times as of rush of blood to head, with sense of heat and distension laterally, even to bursting; beating in head; boring pain over l. eye, coming and going suddenly, making eyebrows contract, and sight dimmed as by fog; frequent emission of limpid urine; general anguish on womb like something pushing outwards; general feeling of menses coming on; fluttering in uterus; drawing pain in breasts; numbness of l. hand extending to arm. At n., many dreams of people and events; strikingly clear visions, as if one saw, touched, and heard the people dreamt of, as when awake, but without painful impression. On 3rd d., sadness alternating with cerebral excitement as on 2nd d.; weeping with despair, succeeded by almost immediate calm; sudden pain r. side of head; pain as of cranium being crushed; pain on top of head, as if cranium was splitting; eyes are drawn back (*tirés en arrière*); flatulence which tires much after each meal, as it neither rises nor goes downwards; alternate swelling up and diminution of abdomen; drawings in walls of abdomen; difficult, firm stool; slight hæmorrhoidal swelling; feeling of pressure on lower abdomen, impeding walking; unaccustomed moisture of vagina, which relieves; each m. in bed, exaltation of sexual desire; swelling, distension in breasts as before menses; cold in l. arm, feels as struck by cold wind; lancinating pain in toes, especially in big toe of l. foot, with very great heat, and sensitiveness which hinders wearing a boot, after sunset and indoors it gets worse, skin is red—more so from heat, cold air or water relieves directly, but heat of bed brings it on again, although it ceases during first half of n. (this pain came again several e.); great uneasiness in lower limbs in closed room. Desire for fresh air; aversion to everything which might increase heat of body, great desire to use cold-water lotions; sleep from 2 a.m. to midday; dreams as on 2nd n. of people and events. On 4th d., blood more violently to head; violent pressive pain in forehead, which seems to crush eyes with enormous weight; light hard to bear; no appetite, taste lost; slight redness with mealy efflorescence on chest; uneasiness in limbs, especially at bend of arms, can hardly bear arms covered. On 5th d., pressive pain on r. side of occiput which renders walking difficult; severe colic with chill alternating with puffs of heat to face; drawing sensation in r. hip, as if leg was too long and drawn downwards; want of open air, anxiety, impatience indoors. On 7th d., blinking of eyelids, their free edge is red; pain in eyes from within outwards. On 8th, 9th, and 10th d., uncertain appetite, longing for highly-seasoned dishes, high cheese, liqueurs, coffee, tea. On 11th d., at l. elbow, on olecranon, round red spot size of a franc; causes neither itching nor burning, becomes covered with a scurfy, dry, friable layer, which drops after 2 d., without leaving any mark;

similar eruption, less large, on front of same arm. Without date,—slight dartings in brain; great pressive pain at sinciput in m., disappears with difficulty during d. through walk in open air; towards midday, headache goes off with feeling of explosion, in which there is greater clearness of thoughts; on chest a spot size of palm of child's hand, causing violent itching, the redness disappeared after 5 or 6 d. (*Ibid.*)

3. M—. On 5th d., numbness of hypothenar eminence and little finger. On 6th d., ennui, sinking feeling, as if misfortune were going to happen, and if he knew what it was, would give way to weeping rather than bear up and be angry. Without date,—several soft stools in a d.; feeling as of l. breast being drawn inwards; dull, hardly perceptible, distant heart-beating, seems as if heart had stopped. (*Ibid.*)

4. M. M—. On 6th d., feeling of excessive anguish from midday to 3 p.m., as if misfortue were threatening, as if bad news were coming; then feeling as if one could give way to crying. Without date,—irritation, anger, seeking someone to pick a quarrel with; midday to 2 p.m., tightness in precordial region. (*Ibid.*)

5. P—. On 1st d., confusion in brain; weight of head after 1 h.; heavy head, heat, beating in head, face red; m., eructations violent and frequent; after e. meal general uneasiness; skin hot, pulse frequent and full. On 2nd d., beating in head on ascending, on walking; nausea; dull pain in l. coxo-femoral joint in m. On 3rd d., bounding palpitations; when stronger they extend to epigastrium, with feeling of tightness; burning dartings in great trochanter and l. coxo-femoral joint, going like lightning down to outer hamstring; shuddering with somnolency, skin hot, restless n. On 4th d. injected eyes; fatigue of lower limbs. On 5th d., drawing pain towards inner part of chest from front backwards, under l. nipple, extends along inner part of arm to extremity of little finger; hæmorrhoidal flux. On 6th d., hæmorrhoidal flux; hard to work in e.; deep dartings in front of thigh. On 7th d., dull hearing, sounds of river flowing, of waves; aversion to meat; in m., after much severe eructation, fatigue and great heat of stomach; dull pain by shocks in r. side of abdomen and near navel; frequent urging to urinate, urine more copious; feeling of fulness in chest, causing syncope to be feared; during n. and m. uneasiness at heart. On 8th d., urine thick, viscous; heat in urethra on urinating. On 9th d., bleeding of nose. On 10th d., after moment's reading, obliged to rest, tendency to sleep. On 11th d., symptoms disappear little by little, leaving moral sensitiveness, which makes one inclined to weep under influence of least emotion; formication in lower extremities; burning heat in feet; restless sleep. Without date,—frequent erections during sleep; pressive pain in forehead, feeling of fulness, contraction of muscles, and pressive tightening (*serrement pressif*) over eyes. (*Ibid.*)

6. P. J—. On 1st d., recurring throat irritation, with heat of short duration. On 6th d., slight disturbance of intellect with general weakness; woke up at n. with great uneasiness; brain seemed shaken by electric shocks, head seemed empty, consciousness almost nil, fear of apoplectic attack for several min. at n.; when he came to his senses pulse was hard, much quickened; r. carotid beat violently; this lasted till e. next d. Numbness of hands and fingers lasting till end of 8th d. On 7th and 8th d., pain from joint of thumb to shoulder; drawing pain outer l. thigh. Without date,—bleeding of nose 3 times in 5 d. Pain in r. hip and all l. side to shoulder-blade, lasts till 6th d., and gives rise to fever. (*Ibid.*)

7. Mad. T—. On 1st d., e., extraordinary liveliness. Without date,—pain below sternum; very slight eruption between breasts; broken feeling in lower limbs; pain in joint of r. foot. (*Ibid.*)

8. T—. On 1st d., vertigo on walking; sharp and transient dartings in forehead, in temples, especially in occiput; pressure in temples; dull pain seeming to take up whole œsophagus; all l. chest painful; discomfort increased by motion. On 2nd d., dull pain in muscles of precordial region; pain in tendons of flexors of l. wrist; pain in r. shoulder; pain in l. knee; pain in joints of l. foot. On 3rd d., shooting pains for several seconds in auditory canal, then centring in occiput, and there dying out; they return in course of d., but weaker; sudden very violent noise, but lasting less than a second, in both ears. On 4th d., dartings in brain on blowing nose, during first half of n.; diminution of sensitiveness of limbs, especially of legs and thighs. On 6th d., pain in l. foot, fixed at joint of big toe and first metatarsal, increased by motion and hindering all walking, like gouty pain. On 7th d., pain in joint of l. elbow; severe itching round thumbnail of l. hand; severe pain in joint of l. foot, increased by walking; very severe itching in thighs and legs, increasing

towards 6 p.m. and in open air. On 8th d., unbearable pain in l. foot and in muscles of leg; a small excoriation made on leg by scratching is seat of pretty severe lancinating pain. Without date,—ephemeral vertigo. 3 d. after stopping drug pains recommenced in joints, especially in big toe and l. foot. (*Ibid.*)

9. *Without name.* On 1st d., light tires eyes; drawing pain in sacrum. On 2nd d., drawing pain in sacrum. On 3rd d., fugitive pain in whole r. side of head; beset with desires, fears she will not be able to bear these painful sensations, nervous agitation (*ébranlement*). On 4th d., very violent pressive pain in forehead, over eyes. On 6th d., during n., anxiety, caused by undulating beatings in chest. On 8th d., m., on waking, sore throat (*astriction*); painful drawing in soles of feet and in toes. On 9th d., e, pains in head increase, and cause patient to lie down; they are worse at back of head, head remains painful all n.; m., on waking, sneezing, coryza. Without date,—tired eyesight (*regard*); heat in rectum; menses 8 d. late; during these 8 days colic and other troubles which generally accompany menses have been present, but have disappeared immediately on commencement of flow, which was more copious than usual; violent and frequent heart-beating; drawing pain in back; general heat is increased during drug's whole action. (*Ibid.*)

10. *General symptoms.*—General uneasiness, lassitude, amelioration after eating; symptoms increase in second half of d., especially e.; great lassitude from heat, especially that of bed; inaction hard to bear.

AURUM.

Including *A. metallicum*, gold leaf triturated; *A. muriaticum*, the bichloride, $AuCl_3$; *A. muriaticum natronatum*, the chloride of gold and sodium, $NaCl. AuCl_3 2H_2O$; and *A. sulphuratum*, product of decomposition of chloride by sulphuretted hydrogen.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 335 symptoms of A. metallicum from himself and seven fellow-observers; also eighteen from A. muriaticum.

2. IBID., *Chronic Diseases*, part ii of original, vol. of translation. The same, with eighty-two additional symptoms, mainly from author.

3. Dr. MOLIN proved A. metallicum, A. muriaticum, and A. sulphuratum. In what manner is not specified here, save that he experimented on himself and some others. But from another place (*Bull. de la Soc. Méd. hom. de Paris*, i, 7) we learn that he used the 4th dil., beginning with 1-drop doses, and duplicating daily (1, 2, 4, 8, 16, &c.) until positive effects were obtained; then allowing these to subside, and proceeding in like manner again and again. He reports the following results:—

a. From A. metallicum,—desire for solitude; restlessness; loss of memory; religious exaltation; ennui; causeless grief, and frequent weeping; impatience and anger; disgust for life and tendency to suicide. Sleeplessness or continual sleepiness; nocturnal agitation; unpleasant and fatiguing dreams. Eruption of small white pimples all over hairy scalp, with heat and itching; great and continuous burning at vertex and occiput, some over whole head; every 3 or 4 d., attack of shooting, burning and beating in l. forehead, with nausea and even vomiting of bile; mental exertion makes head ache. Burning and shooting pains, with itching, in lids and inner angle of eyes; redness of sclerotic and (before menses) of lids; constant lachrymation and feeling as of sand in eyes; agglutination of lids in m. Burning, pricking, and

itching behind ears, and oozing there; burning and darting in ears; buzzing, hissing, and ticking sounds in ears; diminished hearing. Redness and swelling of nose, or red pimples thereon; burning and itching within and without, with shooting and smarting within nose; scabs from nose, or thick discharge like white of egg; frequent sneezing. Face red and swollen, or marbled with red and violet patches, or spotted with large red pimples. Aphthæ in mouth, heat and smarting there; redness and swelling of gums, which bleed easily; pimples on lips, with burning, darting, pricking, and great itching. Same feelings in throat, most felt when swallowing. Aversion to eating; extreme thirst; desire for cold or for alcoholic drinks; nausea, and desire to vomit immediately after eating, sometimes even while eating; hiccup; watery risings; chokings a little while after having eaten; burning, shooting and cutting pains in stomach and abdomen (especially r. hypochondrium and epigastrium); sensibility of abdomen to touch, an especially tender spot in l. hypochondrium; weight over pubes; heat and sensation of scratching in groins; twisting colic before and during stools, which are diarrhœic, most frequent at n., greenish or yellowish-grey; burning and forcing pains at anus; external piles, bleeding during stool.* Pain during micturition; urine scanty, either red and hot, with gravel, or thick, with very strong ammoniacal odour, and quickly decomposing. Burning, shooting, and smarting in urethra; heat and dull pains in perinæum; painful erections. Redness and swelling of labia; heat, smarting and prickings at vulva and in vagina; white thick leucorrhœa; period delayed. Frequent strong and tearing cough, noisy during n. Respiration laboured; burning, shootings, and prickings in chest; palpitation at n., and when lying on back, strong and irregular; heat, itching, shooting, and cutting in heart. Pains in parotids; difficulty of turning neck as in torticollis; heat in axillæ and loins, going from latter to bladder; bruised pain in loins; heat, pricking and itching in back. Burning, dartings, and prickings in arm; fatigue of arms, movements are difficult; sharp pains in finger-joints. Difficulty in walking; swelling of feet; redness and burning of toes.

b. To A. muriaticum is ascribed a very similar array of symptoms, with the following modifications: To the mental symptoms are added excessive gaiety and carelessness, and motiveless waywardness. The sleepiness and sleeplessness appear in d. and n. respectively. In the head there is giddiness; coldness on vertex, instead of heat, latter being felt in forehead and occiput; head heavy and stupid, and often moves restlessly. The eye symptoms are identical, with addition of difficulty in keeping eyes shut. Moisture behind ears forms scabs. Discharge from nose is yellow and thick, forming scabs, or watery, acrid, and malodorous. Besides other symptoms of mouth and throat, there is swelling of submaxillary glands and some dysphagia. In stomach there is uneasiness and pain after eating, putrid eructations. slow digestion, frequent yawning after eating. In abdomen, inflation, with suffocative feeling; stitch in l. hypochondrium as after running

* "Other observations have offered us examples of hæmorrhoidal tumours that owed their appearance to the exciting effects of the chloride." (LEGRAND, cited by BURNETT. See p. 508.)

fast; continual feeling of uneasiness in r. hypochondrium, with burning there; redness, itching, heat, and smarting at umbilicus, and eruption of small red pimples above pubes. The genital symptoms are swelling and tension of testicles, lancinations along cord, heat and itching in urethra; same in vagina, redness and swelling of labia, continual oozing at vulva, yellow and clear leucorrhœa. Some d. before period, eruption of large red pimples on labia. The cough is more pronounced, and is accompanied with heat in larynx, and expectoration, white and blood-streaked, or yellow and thick; speech is difficult, and voice hoarse and stridulous. With chest and heart symptoms there is sense of suffocation at n. The sensations in back and loins were much felt, with stiffness and fatigue. Besides burning and dartings in arms, there is involuntary starting, aching and stiffness; last also in hands, with burning and itching, and difficulty in closing them. Besides redness of toes and swelling of feet there are boils on buttocks and thighs; stiffness in thighs and legs; swelling of knees; heat, pricking, and lancinations in legs; burning of feet; cutting pains in toes when walking.

c. The same may be said of the symptoms referred to A. sulphuratum. The disposition is mournful and thoughtful, or sad and disagreeable. The dreams are very terrifying. Continual flow of blood to head, and falling out of hair, are new symptoms in this region. To the eye troubles are added throbbing and photophobia. To those of the nose great sensibility to least touch, and throbbing and cutting pains; the coryza is dry. Pallor of the face is noted besides the other appearances. The gums bled; the lips cracked; the teeth felt numb, or were the seat of shooting pains, which sometimes spread over head and then receded again. Shootings were felt also in throat. In abdomen, sensation as of a ball rolling about was added to other feelings. The pains at anus were very sharp, and there was constipation instead of diarrhœa—stools being like rabbits' dung. Incontinence of urine occurred at n. The sexual symptoms were very marked, and to the ordinary ones were added transitoriness of the (frequent) erections, amounting to impotence; non-appearance or irregularity of menses, with extreme weariness, pains in heart and nausea the d. before them; weight and bearing down in female parts. Cough as with A. mur., and croupy. Chest symptoms are the same, but palpitations are felt only on strong movement. Drawing right along spine; swelling of thyroid and of breasts (which are tender to touch); cracks in nipples, and bitings and dartings at base of mammæ,—are peculiar symptoms of A. sulph.; in other respects it seems to have affected trunk and extremities like A. met., and mur., but it caused some oscillation and uncertainty in legs, and sense of deadness in feet. The burning, so marked with the other two preparations, is rarely noted under this; but, on the other hand, its darting pains are more pronounced. (*Bull. de la Soc. Méd. de Paris*, i, 19.)

4. Dr. Buchner took $\frac{1}{10000}$th gr. of A. mur. The chief effects were: Burning in conjunctiva, dryness of eyes, weakness of sight, the letters disappear by candle-light for a few m., the paper appears blank. Weakness of memory, confusion of head, pressure on brain, along sagittal suture. Drowsiness; profound sleep. Indisposed to mental

work. Bruised feeling of limbs. Oppression about heart compelling deep breathing, which relieves. Frequent call to urinate, lasting 2½ d. Increased secretion of urine. Excess of urea and urates. Speedy decomposition of urine. (*N. Zeitsch. f. hom. Kl.*, iv, 208.)

5. Dr. EBERLE proved the 6th, 3rd, and 1st dec. dil. of Aur. mur., and also a solution of 1 to 16, from 25th March to 5th Dec., 1858. His principal symptoms were: severe headache on l. frontal protuberance near foramen supra-orbitale, next d. on r. frontal protuberance. Smarting and itching in r. canthus, compelling scratching. Violent tearing in r. temple. Drawing pain in l. temple towards crown. Shooting pain in l. ear. Drawing pain in r. ear. L. ear feels as if a plug were in it (for several d.). Lightning-like twitches in r. upper maxilla. Tickling in trachea with dry cough as from breathing in dust. Drawing pain in both sides of chest. Spasmodic drawing between sixth and seventh ribs, with feeling as if someone were trying to stretch out heart. Shooting in r. pectoral muscles, not increased by pressure, but a little so by deep breathing, and much so by moving upper part of body, lasting 10 h. Shooting tearing in intercostal muscles of r. side, then of l. side. Great oppression of chest hardly allowing him to breathe. R. chest on rising up as if beaten, the pectoral muscles painful to touch, this was as bad at n. In the n., woke up by a shooting boring pain in the point of impact of the apex of heart, deeply seated, that lasted some m. (thought he could not have borne it if it had lasted longer); not affected by deep breathing; it went off completely when he pressed his hand on cardiac region; immediately afterwards radiating from this place a lancinating pain which ended in the l. hypochondrium, for a moment so violent that it stopped his breathing; on breathing deeply the pain went off. Empty feeling in stomach. Painful drawing in pit of stomach to middle of sternum (as if a hard body were pushed upwards; aggravated by stooping, eating, drinking, only coming on in jerks). Drawing pain in small intestines frequently recurring during d., relieved by liquid evacuations, eating, drinking, movement, but not by pressure. Rumbling and audible grumbling in abdomen. Thin, frequent stools with burning in anus, and tenesmus. At n., woke with violent itching on glans penis. Painful drawing in l. testicle to inguinal ring, recurring in jerks. Burning when urinating as if urine were too hot and acrid. Feeling of heat in urethra and strangury. Shooting pain all along urethra on rising. Stiffness in nape. Drawing, tearing pain in muscular parts of both hip-joints, lasting some time. Lancinating pain in jerks on anterior and middle of both thighs extending to patellæ, so violent as to cause him to jump. Occurrence of a petechia-like exanthem on both legs, with a small papule in the centre, which lasted 5 d. Bruised feeling on lower third of r. leg (as if beaten), which becomes so bad by continual walking that he must limp home (this went off after 7 h.) with a feeling as if the pain always tended more towards the big toe and flew out at the tip of the toes. Burning pain as from a red-hot coal on anterior aspect of l. leg. Tearing in l. metatarsus. Drawing in l. instep. Drawing burning pain in l. big toe frequently recurring during d., worst when walking. Burning pain in l. clavicle, transient. Drawing pain in r. shoulder-joint. Drawing and

boring in middle of r. upper arm for 3 successive d. Drawing in elbow as if a sinew were violently pulled, recurring frequently momentarily, d. and n. Violent drawing in ball of r. hand. Drawing tearing pains in various parts of body, especially extremities. Strong metallic taste with increased secretion of saliva, urging to swallow, at same time feeling as if a plug stuck in throat (from undiluted solution). Fluent coryza with rough throat and irritation to cough. Coryza with frequent tickling in throat. Great weariness. Extraordinary feeling of prostration in limbs, indescribable weariness of whole body scarcely allowing him to rise from his seat. Bruised feeling in back rendering stooping scarcely possible. Sad disposition as though some great misfortune were about to occur, for several d.; very restless sleep with frightful dreams. (*Ibid.*)

6. Dr. Eberle's housemaid took the 6th, 3rd, and 1st dec. dil., the undiluted solution, and a trituration, of Aur. m., from 17th March to 3rd November, 1878. After a restless n. headache on rising, tearing pain in l. temporal region, towards the r., all d., only going off in bed. After rising throbbing pain in l. temple, going off on applying cold water, recurring in afternoon and lasting 4 h. Throbbing headache with bad dreams. Vertigo and whirling before eyes at every movement and tearing pain above eyes, aggravated by stooping, ameliorated in open air, lasting all d., and only going off at n. in bed. On rising in m. tearing pain, beginning above l. eye, extending to r. ear, out at which it seems to go. The pain was so violent that she must lie down, when the pain at once ceased. Violent tearing from l. temple towards ear with vertigo and tearing above eye. Tearing in l. temple lasting several h. and returning when in bed. Sorethroat and redness of m. m. of fauces. On rising, difficult deep breathing as if a stone lay on chest. Tearing in r. chest from middle of sternum to r. shoulder-joint, aggravated by every breath and lasting ½ h. Shooting in cardiac region to middle of sternum, aggravated by every movement and deep breathing, lasting 4 h. Anorexia. In m., when fasting, nausea and inclination to vomit, going off after breakfast. Vomiting for ¼ h. with violent retching and putrid eructation, soon after cutting in belly and four watery stools. After taking 1 gr. Aur. m. in substance, great nausea and inclination to vomit, and vomiting of water (which had been swallowed after the medicine) with a trace of bright blood. Frequent yawning soon going off after eating, but soon returning, lasting 2 h. Flat taste in mouth all d. with great nausea, going off at n. in bed. Soon after taking dose, thin, watery stool, with much griping in bowels, in spite of the urging to stool it is not satisfactory. Violent contractive pain in belly making her crouch together, lasting 3½ h., and only going off when she goes to bed. Much flatulence, with cutting in belly and a fluid stool. Transient severe itching in pudendum. Menses appeared some days too soon, more profuse; the blood discharged was so acrid that it made her sore; before menses came on, leucorrhœa. Menses next time 7 d. too soon, blood brighter, not so acrid, lasted only 2 d. The leucorrhœa, after ceasing, returned again and lasted 4 d.; it is very acrid, makes the thighs sore, and is accompanied by itching in genitals. Spasmodic tearing in legs, begin-

ning under hough and extending as far as middle of calf, lasting severely 4 h., then declining gradually. Tearing in r. big toe and inner side of r. knee. Tearing in l. shoulder lasting 2 h., for 2 d. the shoulder was painful to touch. Tearing in r. arm from elbow-joint to tip of little finger, so severe as to prevent her working. Feeling of having been beaten on l. arm. Fluent coryza at n. Sneezing four times in succession, then tearing in l. nasal bone towards eye with great feeling of heat in eye, great injection of conjunctiva and lachrymation, which was so sudden and violent that the tears actually spurted out of the eye. In open air severe pressure in eye and tearing in it, with complete blindness. On covering up eye with hand all these symptoms went off. This phenomenon occurred for some time periodically. Uncommon prostration of limbs. During all the time of the proving such weariness that she can hardly walk and had to lie down frequently during d. After rising, paralysed feeling in l. shoulder lasting ½ h. Chilliness with goose-skin. Great redness. Dreams of misfortune about to happen. (*Ibid.*)

7. A man who wished to prove gold had after a dose of 6th dil. such violent diarrhœa for several d. that he would not go on. (*Ibid.*)

8. Dr. LEMBKE took A. mur. natronatum 5th Nov., 7 a.m., 5 grs. 3rd trit. At 2 p.m. severe boring in bone above r. eye when walking. 4 p.m., pressure in r. foot when sitting. All d. frequent micturition. Urine yellow, cutting in point of urethra, also when urinating. 8 p.m., frequent drawing in lower incisors.—7th, 7 a.m., 5 grs. 8 a.m., severe boring in r. knee when sitting. 11 a.m., drawing on l. cheek, boring in r. eye. Very painful drawing in r. fingers. 8 p.m., boring in r. occiput when sitting. 9 p.m., pressure outward in thoracic walls from r. nipple, not affected by breathing.—9th, 7 a.m., 10 grs. 7.15 a.m., weary pain in lower part of l. forearm and soon after some pain in legs when sitting. Metallic taste lasts long. 7.30 a.m., and repeatedly later, weight and heat in occiput. Perceptible heat in inside of cheeks and also externally. Sensation of weight and weariness in lower limbs, especially observable when sitting; this is relieved by movement, but immediately returns when at rest. 8 a.m., pressure in bones above eyes, and in muscles at side of l. scapula. 8.30 a.m., drawing in r. toes, in r. cheek, in bones of sinciput, when sitting. Burning heat in cheeks. Drawing in face and head, deep in; drawing in calves, shoulders, upper arms. 12 noon, great stretching, pressing asunder, in roots of r. fingers when walking. 2 p.m., severe pressure in bend of l. elbow when walking, several times. Frequent drawing in forehead above eyes, with pressure and weight lasting several h. Much heat in face, weight in sinciput, a great part of d., also when sitting. 11 p.m., after lying down in bed drawing in l. ankle-joint, and immediately afterwards, below r. inner ankle, sensation of leather-rubbing, or rather a noise as when dry leather is rubbed, but without any pain, for about 1 m. 2 a.m., awoke with feeling of drawing in l. shoulder.—10th, 7 a.m., 10 grs. Immediately the same noise at r. inner ankle when foot is at rest, then pressure in l. knee and drawing in r. tibia, shooting in l. toes. Nipping above inner condyle of r. humerus. 7.30 a.m., the same leather noise while stand-

ing. Pressure in l. shoulder, pressing asunder in roots of r. fingers, then in r. toes. Drawing in lower part of l. tibia. 8 a.m., the same noise when sitting, lasting a few m., coming at regular intervals, slower than the pulse, occasionally intermitting, not felt when the foot is moved, but returning when foot is at rest, and this repeatedly. 8.30, the same creaking noise while sitting, for several m. Drawing in frontal bone. Burning pain in skin on dorsal aspect of forearm. Severe pressure in r. forearm. 9 a.m., boring at lower part of r. tibia. 11 a.m., stitches in r. knee while walking. Pressing asunder in r. finger-roots. Shooting in tip of urethra. 7 p.m., shooting in l. knee while seated. 10 p.m., 10 grs. N. passed without symptoms.—11th, 7 a.m., 10 grs. Drawing in l. finger-roots, in l. knee. 8.30 a.m., the same creaking as yesterday when sitting. Shooting above inner condyle of l. humerus. 9 a.m., burning heat in cheeks. 11 a.m., transient stitches in thoracic walls now r., now l., when walking. 9 p.m., drawing in r. toes, in l. finger-roots, several times, both when walking and sitting. All d. feeling of faintness and heaviness in sinciput, also next d. on waking, lasts all d. 12 noon, drawing in tibiæ. 7 p.m., drawing in l. cheek from above downwards.—13th, 7 a.m., 10 grs. 2nd cent. trit. Metallic taste as before. Immediately a smarting sensation at tip of tongue. 7.30 a.m., drawing in chin, then in lower part of r. tibia, pressure in ankle-joints when sitting. 3 p.m., shooting in tip of tongue. 4 p.m., painful burning on border of upper lip, lasting some time.—14th, 7 a.m., 10 grs. In ¼ h. when standing quick pulsation in l. inner ankle towards big toe, lasting some time; immediately afterwards drawing in toes. The same pulsation repeated after a short interval. 7.30 a.m., pressure in forehead, drawing deep in l. big toe, worst when at rest. Drawing in l. occiput. 8 a.m., burning heat in cheeks and ears, continuing till after 9 a.m. Pressure in r. knee, severe tearing in r. frontal bone, in second joint of r. thumb. 9 a.m., considerable coldness in back, hands quite cold, blue nails, at same time heat of face and ears, lasting ½ h. 11 a.m., pain in r. knee when walking. E., drawing in lower part of r. tibia, in inner border of l. then of r., when sitting. 10 p.m., stretching asunder in roots of l. fingers, then in l. wrist-joint when sitting. 11 p.m., frequent short dry cough with scraping in larynx. Stitches in walls of chest, l. side, two fingers' breadths below nipple, not affected by breathing.—15th, 6.30 a.m., in bed, burning in l. outer ankle extending up to tibia, when at rest. 7 a.m., 10 grs. 7.30, great heat in cheeks and ears, felt also externally. Boring in bones of r. instep, deeply seated round about r. ear, in l. shoulder, when the parts are at rest. 8 a.m., pressure like bruise in r. knee, in l. elbow-joint, above r. elbow. Shooting, half scraping feeling under tongue. 4 p.m., pressure in frontal bone wandering about, in r. elbow-joint, in bone before r. ear, in lower part of l. tibia, and thence through feet into toes, going in a twisting manner back into the tibia, when seated. Later, the same in l. knee, then pressure in second joint of r. thumb. 5 p.m., pressure in l. nasal bone. All the d. frequent sneezing, nose admits the air very freely. All symptoms are worst when at rest. 8 p.m., shooting in tip of r. big toe; frequent cracking in nape on moving head. Stretching in l. finger-roots. Violent

boring on dorsal aspect of r. big toe when at rest, going off by moving toe, but returning.—16th, 7 a.m., 5 dr. of a sol. of Aur. mur. nat., 1 gr. to 100 dr. distilled water. Pressing in l. finger-roots, in r. tibia, under l. elbow. Fine shooting in skin of cheeks followed by heat. Pressure in r. deltoid muscle with feeling of warmth that streams into fingers. 8 a.m., drawing in r. frontal bone, in roots of l. toes, in bones of r. hand, this generally accompanied by feeling of bruise. 8.30, pressure in r. ankle-joint, as long as foot is at rest. Pressing asunder in temples. Continued severe boring in l. tibia when sitting. 12 noon, shooting in l. knee when walking, in tips of r. toes, in back of r. big toe. 5 p.m., when sitting, severe boring in l. tibia, later in back of l. foot, in bone before l. ear. 6 p.m., shooting in soft parts above and on inside of r. knee. 7 p.m., when sitting, above l. side of forehead on the hairy scalp, a sharp cutting pain on a circumscribed spot. —17th, 8.30 a.m., drawing in r. finger-roots, on r. tibia, and l. knee. 10 p.m., violent boring in frontal bone, especially r., in lower part of l. tibia, drawing in roots of r. toes, severe tearing in l. elbow-joint, compelling him to move it, when the violent pain ceases, but returns in a few m. when the arm is at rest, and goes off without moving it again.—18th. On rising, though he had slept well, he felt very faint; this lasted more than 1 h. 9 a.m., 10 dr. 11 a.m., tearing in l. frontal bones, l. cheek, betwixt ribs below l. nipple when walking, later, tearing in l. elbow-joint like last n. when walking. Towards 2 p.m. exhausted feeling lasting some h. Pressure in l. nasal bone, in l. ankle-joint, when sitting. 10 p.m., drawing in lower incisors. 11 p.m., boring in l. tibia, above l. eye, when sitting.—19th, 7 a.m., 15 dr. 7.30 a.m., boring on r. tibia, in bone behind r. ear. Drawing on middle of l. tibia, in ankle-joint, on back of 2nd joint of r. thumb, all when at rest. 4 p.m., drawing on l. side of forehead, in l. elbow-joint. Boring close behind r. ala nasi, later on lower part of l. tibia. Shooting in tips of toes when sitting. Pressing in l. elbow-joint repeated while at rest.—20th, 6 a.m., after waking in bed, drawing in l. elbow-joint and l. tibia when at rest. 7 a.m., 15 dr. 7.15 a.m., drawing in r. knee when sitting, then violent pressure on dorsum of l. foot, tearing on l. tibia, shooting on tip of l. big toe. 8.30 a.m., drawing in occipital bone, in ball of l. foot, burning heat in cheeks. Bruised pain in joints of arm and in wrist-joints when at rest, weight and pressure in sinciput, stitches in thoracic walls under l. axilla. 3 p.m., when standing, irregular heart's beats with feeling of pressure in heart and difficult breathing, at same time in heart a sensation of anxiety and want of breath, shooting in the soft parts on inner side of l. thigh, stitches in anus. Pressure in l. ankle-joint, when sitting, several times. Heaviness and pressure in forehead several times during d. 5 p.m., the same pressure in heart, but without palpitation, when sitting; the sensation lasts only an instant. 10 p.m., severe pressing in forearm and elbow-joint, when seated, and also later. Drawing in r. toes when at rest.—21st, 7 a.m., 15 dr. 7.30 a.m., pressure in r. knee, then in l., when sitting, then in lower part of l. tibia. 8.30 a.m. and 9 p.m., drawing in occiput. 2 p.m., burning in cheeks. Continued weary pain in r. forearm with increased feeling of warmth. Pressure in both

elbow-joints when at rest; burning on under surface of tongue and beneath tongue. 3 p.m., some violent heart's beats and pressive sensation when standing. 4 p.m., tickling in larynx and below it. Shooting in r. inner canthus. 10 p.m., violent boring in bone above l. eye, in the room, also later. Cutting pain in a small spot of r. parietal bone. Pressure in l. elbow-joint and in forearm when at rest, also in joints of r. little finger.—22nd, 6.30 a.m., immediately after waking pain above l. eye, in lower end of l. forearm, on both sides of l. tendo Achillis. 7 a.m., 35 dr. Immediately nausea for a short time, heat in cheeks prolonged. Stitches deep in l. ear, yesterday had roaring. Boring in l. wrist-joint, on dorsum of l. foot towards toes, in l. thoracic wall above nipple, above both eyes. 8 a.m., heat and weight in sinciput. 8.30 a.m., boring in l. occiput, in knees. Constant burning in tip of tongue with shooting. 12 noon, constant boring in bones below eyes, drawing in roots of fingers also later. Burning deep under tongue at the sides of the frenulum. Pressure behind sternum, deep in chest to the back, when walking; afterwards the same pain and some irregular heart beats. Boring in l. tibia, in roots of l. fingers. Weight and pressure in sinciput almost all d., worst at 4 p.m., with heat in face, throbbing in temples, drawing over crown, burning in cheeks transiently relieved by washing with cold water, aggravated by stooping. 7 p.m., stitches in l. outer canthus. 7.30 p.m., heat, pressure, &c., in sinciput, nearly quite gone. 9 p.m., severe boring in r. temple. 10 p.m., twitching round about chin towards lower lip, felt with hand. 11 p.m., boring in roots of r. teeth, alternating with shooting, when sitting; burning in tip of tongue.—23rd, 7 a.m., boring in l. tibia when sitting, later in l. elbow-joint when at rest. 10 a.m., severe burning in tip of tongue continued. 4 p.m., constant pressure in r. elbow-joint when at rest, relieved by moving joint. 10 p.m., severe shooting in l. eyeball, drawing in roots of l. fingers, on l. side of skull, burning in skin of r. cheek.—24th. Tension in roots of fingers, boring on tibiæ, burning in tip of tongue, stitches in anus. A pile (to which he was not subject) comes out and is painful, goes off on 28th.—25th, 9 a.m., 25 dr. of 1 gr. Aur. m. n. in 100 dr. distilled water. 12 noon, stitches in r. ear. 4 p.m., boring in l. tibia, and at 5 p.m. in r. elbow-joint repeatedly. Quick, irregular heart beats when stooping; tension in roots of fingers.—26th, 7 a.m., 25 dr. From 7.30 to 9 a.m. drawing in roots of l. fingers, in r. external ankle; burning heat in cheeks, heat and weight in sinciput. 8.30., boring in r. tibia, then in l. Violent pressure in l. elbow-joint and r. scapula. 4 p.m., shooting in l. eyeball, tearing in l. side of head, tension and pressure in muscles of l. side of nape to l. clavicle, increased by bending head to r., sometimes intolerable when at rest, lasting several h.; boring like a peg in l. temple.—27th, 7 a.m., 25 dr. 8 a.m., boring in r. knee, the pain in l. side of nape like yesterday, continued; heat in cheeks and forehead. 8.30, burning in skin above l. knee, then r., cutting in a small spot of skin of r. parietal region; burning in tip of tongue; bruised pain in r. forearm when at rest; drawing in skin of r. upper arm; boring in l. temple. 10 a.m., coppery taste in mouth lasting all d., at same time a peculiar contraction in orifices of salivary glands in cheeks, with clear

saliva and teeth on edge; after eating all goes off for ½ h., but recommences and continues till 4 p.m., with taste as though a copper coin was in mouth. 3 p.m., boring in r. side of crown, then on l. side of frontal bone, in l. ankle-joint; lower lip is chapped in middle (never had this before), at same time smarting burning pain when touched with tongue, but also when not touched. 4.30 p.m., ate some salted milk soup, and had then a strong copper taste that made the throat feel sore and set teeth on edge. 10 p.m., tension in roots of l. teeth when sitting. As yesterday, drawing from above l. clavicle towards shoulder and nape when sitting. This symptom had occurred several times during d., also when walking. Moving painful parts gave some relief, but sometimes it increased the pain.—28th, 8 a.m., 25 dr. 9 a.m., pressure in r. wrist-joint, then in l. when sitting. Shooting in tips of r. toes. Violent stitches in l. eyeball, burning in tongue. Same pain as yesterday on l. side of nape and above l. clavicle, when sitting, lasting long. 5 p.m., boring on dorsum of r. foot and (7 p.m.) in l. tibia. 7.30 p.m., cutting pain in a small spot of skin of r. cheek. Tearing across skull; boring round about the r. ankle-joint. Cutting in skin above l. knee.—29th, 6 a.m., in bed, pressure in l., then in r. wrist-joint. Shooting in l. toes continued. 6.30 a.m., 25 dr. Continued metallic taste, flow of saliva, and teeth on edge, heat in cheek and ears. Smarting in lower lip. Pain in skin above l. knee like d. before yesterday 7 a.m., wandering pains in forehead. 8 a.m., pressure in l. knee when at rest, in l. ankle-joint, l. side of nape repeatedly, also at 10 p.m. Shooting in r. eyeball, then deep in throat repeatedly. Shooting in tips of l. toes, then severe cutting pain in tips of r. toes when sitting.—30th. Last n. woke by burning in edges of eyelids. 5.30 a.m., in bed, very painful pressure in both forearms when at rest. 5 p.m., repeated burning in tip of tongue and lower lip. Tension in r. finger-roots. Severe shooting in r. eyeball repeatedly. Tearing in r. sole and in skin above l. knee. 7 p.m., boring above r. eye, on l. tibia.—1st Dec. Same symptoms.—2nd, 6.45 a.m., 30 dr. of a sol. of 1 gr. Aur. m. n. in ʒij water. 7 a.m., pressure in knees when sitting repeatedly. 8 a.m., boring deep in l. cheek, on tibiæ, sometimes very painful. Tension often in roots of fingers. Great boring on both sides of r. tendo Achillis when sitting, drawing from r. sole to tips of toes when sitting. 8.30 a.m., boring behind l. ear, above r. eye, pressure in both wrists when at rest. Smarting pain in r. ala nasi and in skin of l. cheek, with drawing. 9 a.m., boring in r. sole, in r. ankle-joint, when standing. Pressing in r. elbow-joint. On moving quickly, quick, small, irregular heart's beats with oppression, scraping in fauces and considerable flow of saliva. From 10 to 12, noon, a half-metallic, half-sweet taste, with copious flow of saliva. Repeated boring on both sides of r. tendo Achillis, also when walking. 12.30 p.m., when standing, several small hard heart's beats with feeling of pressure and interrupted breathing. Shooting in finger-tips, repeated tearing in roots of fingers and tibiæ. From 7.30 taste of copper, flow of saliva, teeth on edge. Contraction in orifices of salivary ducts for some hours. 8.30, when sitting, irregular heart's beats with obligation to breathe deeply. Boring in nasal bones, frontal bone, dorsum of r. foot. Drawing in lower incisors. 9 a.m.,

boring in r. finger-joints. 10 p.m., shooting in skin above r. knee; repeated severe burning in tip of tongue; frequent boring in nasal bones and above eyes, also on right side of nose. 10.30 p.m., tickling in larynx and dry cough.—9th, 7 a.m., 30 dr. 7.30 a.m., coppery taste repeatedly during d. Severe boring in l. upper maxilla, right ankle-joint, dorsum of r. foot, l. temple, r. tibia, also in e. Severe needle pricks in tip of r. little finger. When walking slowly, cardiac symptoms like yesterday. Frequent tickling in larynx and dry cough, also e. Tension in roots of fingers and toes, also 11 p.m.—10th, 6 a.m., in bed, severe boring in l. side of frontal bone, immediately afterwards in r. big toe. 7 a.m., 30 dr. 7.30, tension in r. finger-roots, stitches in r. eye; burning in tip of tongue, copper taste, flow of saliva. 9 a.m., drawing and boring in frontal bone repeatedly, in l. toes, in l. shoulder. Shooting in skin of l. calf when sitting. Tearing in l. side of skull, in l. side of nape. Severe shooting in tips of r. toes; boring behind ears repeatedly. Heart symptoms as before, when moving gently. 3 p.m., severe boring in l. side of nose, burning pain in skin of nape. 6 p.m., pressure in r. wrist-joint, l. forearm, frequently, worst when at rest. Coppery taste all d. and more or less flow of saliva, goes off when eating and returns thereafter. Drawing in dorsal vertebræ frequently, in r. elbow-joint, in l. toes. 7 p.m., stitches deep in ear, severe boring in lower part of r. tibia, then in l. big toe when sitting; shooting in skin above r. knee; repeated burning in lower lip.—11th, 6 a.m., in bed, boring in l. side of forehead and in r. ankle-joint. Later burning in tip of tongue. In course of d. same symptoms as yesterday.—12th. Symptoms in joints, wandering pain in l. thoracic wall, when at rest. Severe boring in l. side of parietal bone, deep into l. eye; burning in tip of tongue. When walking irregular heart beats causing anxiety. Between 2 and 4 p.m., when sitting, the former symptoms, boring, pressure in tibiæ, knees, sudden very violent scraping in larynx, violent dry cough so that he retches, and then some of the symptoms in the limbs when sitting and writing; burning in skin of r. calf and lower inner side of r. upper arm. 4 p.m., spasmodic cough again. In e. the limb-symptoms.—13th. The same symptoms, only seldomer, more severe in e.—14th, 6.45 a.m., 20 dr. of a sol. of 3 gr. in ʒss water; 7 a.m., strong taste of copper, afterwards sweet, teeth on edge, flow of saliva. The taste continues during breakfast, lasts all d. 8 a.m., boring in l. tibia, burning in skin of l. calf, drawing in skin on l. side of nape. Burning in tip of tongue, in skin of r. axilla, in skin of r. side of nape, pressure and drawing in r. knee, r. foot, always getting worse, makes him move about, which relieves, in l. ankle-joint, in muscles of l. side of back, in r. shoulder. 8.45 a.m., 20 dr. Repeated burning in skin of l. calf. Boring in r. tibia, in l. cheek, in frontal bone, burning in tongue. Cutting and boring in lower incisors and towards knees at 6 p.m., in l. big toe, at 9 p.m. in frontal bone, near nose on r. side; burning in tip of l. little finger.—15th, 7 a.m., 30 dr. Burning in skin of l. side of nape repeatedly, pressure in wrist and elbow-joints, also e. Heat in sinciput, burning in frontal bones, also later. Repeated shooting in r. axilla when at rest, also later. 8 a.m., coppery taste commenced, less marked than yesterday. Burning in tip of tongue, severe boring on l.

side of frontal bone, so that l. eye closes involuntarily at 3 p.m. repeatedly. Cracking in cervical vertebræ on moving head. The above heart symptoms when walking at 6 p.m. Burning in lower lip. Severe boring in r. heel-bone continued, at 10.30 p.m., above r. knee, then above r. elbow. Very painful cutting traversing l. side of skull. —16th, 6 a.m., in bed. Repeated boring just below r. knee and tearing on l. side of skull. 6.30 a.m., boring several times in l. knee, when standing. 7 a.m., 30 dr. Immediately, nausea, several times boring in l. upper maxilla. Frequent tearing in various parts of skull. Stitches in l. eye. Boring behind l. ear. 8 a.m., sweetish coppery taste. Small, quick heart's beats when standing, pulse 100, also when sitting, with obligation to breathe deeper, this lasts till 9 a.m.; at 11 a.m., the same when walking. Frequent stitches in l. eye, joint-pains as before, burning in and under tongue. Constant acrid burning in skin of back of r. hand, also the always painless corns have shooting pains when sitting in easy shoes. Burning in skin of nape, in skin of r. hip at 9 p.m. Shooting in skin of l. cheek.—17th, 8.30 a.m., 40 dr. Leaving out the usual symptoms the most remarkable were: heat in head and face. Heart symptoms as when sitting. Very severe boring in frontal bone, frequently, especially above eyes. Frequent burning in tongue. Severe shooting in l. side of lower lip at 5 p.m.—18th, 7 a.m., 30 dr. Boring in tibiæ, frontal bone, l. upper jaw, burning in tongue, coppery taste. Bruised pain in r. elbow-joint. Stitches in l. thoracic wall, not affected by breathing. Burning in skin of l. calf. Boring in l. heel-bone, on dorsum of foot, in l. scapula. Drawing in toes. Boring in l. lower jaw, behind r. ear, in lower part of l. forearm, in l. zygoma. The former heart symptoms with tight breath, several times when sitting; severe shooting in l. finger-tips, below l. axilla, in balls of feet. E., when walking, the above heart symptoms frequently. 10 p.m., painful burning in knees when sitting. Since this m. the m. m. behind upper incisors red, swollen, painful, especially when touched and when warm or salt food is taken. This state lasts d. and n. till 21st Dec. The place then looked yellow with red border. On 22nd the part had the appearance of a yellow blister with red border, the redness spread towards the l. side of palate, the pain of it woke him up at n. On 24th the part was of a rose redness, painful when touched, and felt rough and swollen. On 26th all was well.—18th, 11 p.m., the same spasmodic cough as before. In bed, at 11.30, painful boring in r. tibia and fine shooting in frontal bone.—19th, 7 a.m., 25 dr. 9 a.m., pressure in l. hip-joint when sitting. Severe burning in tongue, boring in tibia. Burning in skin of l. calf. Pressure in knees. Drawing in toes. Burning and drawing in l. side of nape. Boring in lower part of l. forearm. Burning in skin of l. cheek. Boring in roots of r. fingers. Much burning of tongue and boring in frontal bone, uninterrupted till n. 8 p.m., severe boring in r. knee. Painful shooting and burning in ball of r. foot, in l. of nape.—20th. Same symptoms. Boring in nasal bones and r. side of nose. Burning in skin of r. axilla. Severe boring in tibiæ, knees, first phalanx of l. index, l. zygoma, when at rest. 11.30 a.m., pulsation in lower lip and a feeling as if middle of lip was swollen, for some m. 12.30 p.m., boring deep in r. ear when

walking. 6 p.m., heart palpitation as above when sitting. Frequent pressure in shoulder-joints. Sharp shooting in red of upper lip lasting long, nothing to be seen. Touching the part causes shooting. 6.30 p.m., burning in skin on l. side of nose continued. Frequent boring in knees when sitting, in l. finger-roots. Shooting and burning in edges of eyelids. Dull pressure betwixt sternum and r. nipple.—21st. Boring near the nose, in l. malar bone, l. heel-bone. Drawing in l. toes. Often when walking cardiac symptoms; small, quick, irregular heart's beats with deep breathing, and involuntary mood to stand still, this lasts a few m. Tickling in larynx. Great burning in and under tongue's tip, repeatedly. Frequent boring in frontal bone. Drawing, burning in nape.—22nd, 6 a.m., in bed. Drawing in nose from the tip to the top, also on both sides of nose with sensation as if the nose and surrounding parts were swollen, lasts ¼ h. Soon afterwards shooting in toes. 7 a.m., burning in upper lip. Boring in knees when sitting, in r. wrist. 8 a.m., much boring in r. ankle-joint, then in r. shoulder, in l., in r. side of frontal bone, repeatedly later. In the n. the pain in nape was so severe that it woke him, as it had done several times in n. Shooting and burning in r. axilla. 11 p.m., very painful shooting in some finger-joints, in l. knee.—23rd. M., some limb symptoms. Drawing in r. cheek. Much burning in and under tongue. 3 p.m., the joint and bone pains increase as before. Severe burning in l. ala nasi at 4 p.m.—24th. The limb pains and burning in tongue began in m. as usual. In n. much short dry cough.—25th. Same symptoms. Much shooting in r. thoracic wall. E., when at rest, symptoms aggravated.—26th, m., shooting in r. toe. Burning in skin of r. knee. Boring in r. upper maxilla, in l. knee. Several d. cracking in cervical vertebræ when moving head, great boring in occiput at 4 p.m.—27th and 28th. Same symptoms, but slighter. Cold and heat did not aggravate the symptoms; at n. the symptoms were hardly observed; aggravations occurred from 3 to 4 p.m. and lasted till bedtime and returned m. on rising. Rest aggravated. Digestion and urine were normal during the whole proving. No effect on sexual system. Remarkable are the effects on tongue, lips, nose, skin, and heart, also the spasmodic cough. The general health and disposition were quite unaffected. The distinct and continued coppery taste was very striking. (*Ibid.* xi, pp. 17—29.)

9. While I was attending Schönlein's clinical lectures in the hospital at Wurzburg, I induced a fellow-student to make an experiment with triturated gold, which, he said, was absolutely inert. A few d. after he was obliged to keep his room, having an awfully swollen red nose, exactly confirming Hahnemann's observation. (HERING, Metcalf's *Hom. Provings*, p. 215.)

10. Dr. J. C. BURNETT.—"Jan. 27th, 1879, 12.15 p.m., took 4 grs. of A. foliatum, 1_x trit., dry on the tongue. At 3 p.m., intolerable itching in r. groin at inner third. At 4, inspection of itching surface showed a wheal, which had disappeared by 5, though part remained tender. 28th.—Sensation in joints and muscles like one has after unwonted exercise. Feel very strong, with plenty of go in me. Going

upstairs I involuntarily take two steps at a time, and run in and out of patients' houses instead of walking. 29th.—E., no action of bowels last 24 h.; urine decreased very much in quantity. Feel well. 30th. —Normal. At 11.30 a.m. repeated dose. In e. very wakeful; well up to work; great mental activity; testes a little swelled and hard. 31st.—Last n. erotic dreams; early in m. in bed weary pain in r. tarsal bones, shooting up towards knee. Pains in bones of skull, soon passing off. Astringent metallic taste in mouth; tongue slightly covered with brownish fur. Feb. 4th.—In groove between nose and cheek a cutaneous lump of size of a split pea; it irritates, gets picked, scabs over, and persists. Feel *not* up to the mark, very depressed and low spirited, nothing seems worth while. Last 2 n. I have dreamed a great deal of death. At 2 p.m. repeated dose. E., am unusually wakeful; am told I look pale. 5th.—Dreamy towards m.; am repeatedly told I look pale and worn; have dazed feeling in head. 6th.—Feel ill; look pale; have pain at lower part of spine; have had bad n., dreaming of the dead and of corpses. Repeated dose. E., feel fagged, but yet not able to sleep. Feel quite out of sorts. For many d. great activity of uro-poietic system. Sleep does not refresh. 7th.—Look and feel ill, and although weary, no inclination for either rest or sleep.

"March 25th.—Still have some pain at the bottom of the spine; the last week or two my memory has been very bad indeed, and I am low-spirited,—while taking the drug memory was preternaturally sharp. April 16th.—Memory a little less clouded; still a pain at the bottom of back occasionally. 30th.—Memory getting good again. Two teeth began to decay during the proving, and were rapidly and completely destroyed, which the prover attributed to the drug." (*Gold as a Remedy in Disease*, 1879.)

11. A young man, who took gr. iij of 1_x trit. of A. met., 4 times a d., had sense of deafness; burning sensation in stomach, with hot risings; huskiness of voice, as if he had a cold; difficulty of raising phlegm. (Robinson, *Brit. Journ. of Hom.*, xxv, 321.)

II. *Poisonings.*—1. Some years ago a gentleman came to me in deep distress. Said he, "My brain is softening; I am losing my mind, going crazy, becoming hopelessly imbecile, or something of that sort, I hardly know what." He was the picture of despair; and I really thought from his appearance that something serious was the matter. "I never thought a man could be so utterly desolate and melancholy," he continued, "I feel like putting an end to the whole business by jumping into the river, or blowing out my brains, that is, if I have any left." And then my visitor went on to tell me in still stronger language how imbecile he seemed to have become. Everything irritated him; he seemed to have as little control over himself as a child. Ambition and energy were utterly gone, trifling annoyances affected him even to tears. Memory was impaired, and he was unfitted for business. A little inquiry brought out the fact that he was suffering from secondary symptoms of syphilis, for which he had repaired to a popular health resort, and was even now taking medicine which his physician there had prescribed. He feared that the disease had not been eradicated, and fancied that it had attacked the throat and bones of the nose, as he

had a terribly offensive watery discharge from nostrils and posterior nares, and gnawing pains in bridge of nose, all of which he said came on during the preceding three weeks.

I asked to see the medicine he was taking. He pulled out a box of pills, and remarked upon their expensive character, a chief ingredient being gold. I examined one, and with the naked eye small particles of shining gold-leaf could be readily seen. A crude trituration of A. metallicum had been made up into pill form, and the patient had already taken about two dozen of them in the course of three weeks. . . . He was directed to stop the pills; and in a fortnight the whole train of distressing symptoms, melancholy, terrible forebodings, thoughts of suicide, headache, catarrh, nervous prostration, loss of appetite, &c., had disappeared. (Dr. LUCIUS MORSE, *Hahn. Monthly*, xii, 506.)

2. A. muriaticum, taken to extent of gr. $\frac{1}{10}$th daily, occasions a specific fever, more or less violent. "This excitation I consider indispensable for the cure of the diseases"—syphilis, scrofula, &c.—"against which I administer gold: restrained within proper limits, it is never accompanied by any remarkable or even sensible disorder of functions. The mouth is natural, the tongue moist, the appetite continues, the bowels are not disordered, and there is ordinarily only increase of urine and of perspiration. If carried too far, however, we incur the risk of inducing general erethism, with inflammation of this or that organ, according to the predisposition of the patient, which will not only check the treatment, but may even induce a new disease, often more troublesome than the original one. The suspension or modification of the remedy should be determined by the unusual and sustained heat of the skin." (CHRESTIEN, *De la méthode iatroleptique, &c.*, Paris, 1811. C. asserts that finely divided metallic gold produces the same constitutional effects, but in milder degree, with little or no irritation.)

3. Cullerier, the nephew, has seen gr. $\frac{1}{15}$th of A. m. excite, at the second dose, gastric irritation, dryness of tongue, redness of throat, colic, and diarrhœa. Magendie has seen violent gastritis, accompanied by agitation, cramps and pain in limbs, and afterwards great heat of skin, obstinate sleeplessness, and fatiguing erections. (MAGENDIE, *Formulaire*, 8th ed., p. 305, quoted by Pereira.)

4. The chloride of gold and sodium causes, even in doses below the established maximal limit, headache, sleeplessness, dryness in mouth, oppression in region of stomach, and diarrhœa. (WIBMER, *op. cit.*)

5. Salivation has been commonly described as a result of gold, and is said to occur after a longer period, and with less marked stomatitis, than when produced by mercury. Martini met with it only after the long-continued use of small doses of A. m., and found that the double chloride of gold and sodium could be taken for many months without injurious effect; only in one case did ptyalism occur, and then $\frac{1}{3}$rd of an oz. had been taken. (PHILLIPS, *op. cit.*)

6. Constipation is usually produced by the medicinal use of the preparations of gold, and this notwithstanding an increased secretion of the intestinal glandular apparatus is one of the results of their administration. (BARTHOLOW, *Mat. Med.*, sub voce.)

7. Legrand (*De l'Or, &c.*) says that gold is an excitant, seeming to act principally upon the arterial, venous, and lymphatic systems. The patients feel an indescribable sense of well-being, they feel themselves lighter (as they express it); the intellectual faculties are more active. It has been known to cause frequent erotic salacity going on to painful priapism. It leads sooner or later to evacuation of secretions, preceded by a slight febrile state: the temperature is raised, the pulse is more frequent, and then follows profuse and long-lasting perspiration, or a great flow of urine, or (inodorous) salivation, or diarrhœa. The perspirations have been known so severe that the mattress was wet through; they have at times an alkaline odour, at times they are very fœtid; they are followed by a gentle moisture of the skin, that at times lasts a month. The urine is usually thick, cloudy, and very fœtid. (BURNETT, *op. cit.*)

8. According to Gozzi (*Sopra l'uso di alcuni remedii curifici nelle malattie veneree*, Bologna, 1817), the perspirations are decidedly worse at n. Moreover, an excessive dose of gold renders it a debilitant and depressant; thus Gozzi has observed suppression of urine and of perspiration, exacerbation of the disease, the patients complaining of malaise and of unusual heat. Gozzi also asserts that dry warm weather favours the action of gold, and, on the contrary, its use is apt to cause inconvenience in cold weather, especially cold and wet. Sometimes, he adds, the drug causes slight inflammation of the tongue, of the gums, and of the fauces; also, in two cases, inflammation of the cheeks. (*Ibid.*)

III. *Experiments on animals.*—1. At 11 a.m. 4 centigrammes of the chloride of gold dissolved in 4 grammes of distilled water were injected into the jugular vein of a large and strong dog. 15 m. afterwards the respiration was difficult and noisy, there was sighing, suffocation, and vomiting of a very small quantity of white matter floating in foam. These symptoms increased until in 1 h. and 5 m. the animal was in a state of great distress, uttered plaintive cries, and only breathed with the greatest difficulty. At each expiration it made a very loud noise; it remained, however, able to walk, although it kept lying down, and often changed its position. At 4.30 all these symptoms continued with increased intensity, and 1 h. afterwards it died. Examination showed the lungs livid, except in a few small patches, which were rose coloured: the lung tissue was dense, hepatised, gorged with blood, and non-crepitant. Placed in water they sank, and only the rose-coloured patches floated and were slightly crepitant. The mucous membrane of stomach and intestines was healthy. (ORFILA, *Toxicologie*, sub voce.)

2. A small dog was forced to swallow 50 centigrammes of the salt dissolved in 30 grammes of water. The animal vomited 3 times in the following 6 m.; the matters vomited were almost all liquid and scanty. After 20 m. it brought up much frothy saliva. Two d. afterwards it ate with appetite, ran about, and tried to escape. On 4th d. it began to refuse food, became thin and weak, and died on n. of 7th d. after ingestion of poison. The mucous membrane of the stomach was found to be ulcerated, of a clear red colour, and appa-

rently suppurating at more than twenty points. The lungs appeared but little altered. (*Ibid.* There are 2 similar experiments.)

3. Three drops of a 1 to 16 solution of A. mur. were given daily, for a long time, to two dogs. After dose they had much frothing at mouth, frequently lasting hours, vomiting and dejected humour. Excrements black coloured. Both dogs grew fatter. When large doses were given they had severe coryza and violent cough, which had a croupy sound and as though something stuck in their throat. (*N. Zeitschr. f. hom. Kl.*, iv.)

BAPTISIA.

Baptísia tinctòria, R. Br. Wild indigo. Nat. Ord., *Leguminosæ*.

I. *Provings.*—1. J. S. DOUGLASS, M.D., æt. 55, good health, nervous-sanguine temp. On Feb. 5th, 10 a.m. and 2 p.m., took 1 dr. of tinct. without perceptible effect. At bedtime 2 dr. Slept 2 or 3 h., and then woke from a troublesome dream with difficult breathing, a sort of nightmare; felt on waking as if room were insufferably hot and close, hindering respiration. Feeling of greatly increased compass and frequency of heart's pulsations, which seemed to fill the chest; pulse, normally about 70, he judged to be 90 or over, full and soft. There was most uncomfortable burning heat of whole surface, especially of face; tongue was dry on rubbing against roof of mouth, smarted and felt sore as if burnt. The heat compelled him to move to a cool part of bed, and finally to rise and open a window, and bathe the face and hands. With these symptoms was a peculiar feeling of head, never experienced save during presence of fever—a sort of excitement of brain which is the beginning of delirium, this never failing to occur with him when fever continues and reaches any height. After 1 h. these symptoms abated, and he went to sleep, and slept soundly till late in m. On waking tongue was dry, with same burnt feeling; and there was a little dulness in head. Appetite for breakfast good. At 9. a.m. took 1 dr. Same feeling of tongue continued slightly through d., with hot and perceptibly flushed face, and slight confusion of brain. Slept soundly that n. On 7th, no symptoms save slight dryness of tongue. Took 2 dr., and shortly after drank coffee with breakfast, which seemed to neutralise effect. Before bedtime 2 dr. Slept 2—3 h., and dreamed of labouring hard in deep snow, suffering with heat from exertion, and finally being smothered in the snow. Awoke with great difficulty of breathing, lungs felt tight and compressed, could not get a full breath, felt obliged to open window to get face to fresh air; same burning heat of surface, dry tongue, increased and quickened pulsations of heart, and peculiar feeling of brain, as on first n. An h. passed before he could breathe easily and felt comfortably cool. Slept well remainder of n., after having for a short time slight febrile chilly horripilations over lower limbs and back. On 8th, in m., slight dulness, heat of face, and dry tongue; appetite good. Head, face, and tongue continued thus all

d.; at n. slept profoundly. On 9th, no symptoms save bloated feeling of eyes and sense of having slept too long and hard. At 11.30 a.m., 2 dr.; very soon slight chilliness in lower limbs and back, brain a little stimulated. At 1, feeling dull, especially in occiput, where there was slight pain and fulness, lay down and slept an h.; waking from a slight sort of nightmare, with moderate tightness of chest and correspondingly difficult breathing, which was soon over. At 3 p.m., 2 dr., soon after dinner; no effect. At bedtime 2 dr. Again waking (with some difficulty) from nightmare after about 2 h., anxiety continuing for some time after waking. Burning heat and evident feeling of pulsation in feet for ½ h., after which he went to sleep and slept soundly.* On 10th, at 2.30 p.m., 3 dr. Within a few m., heat of face, soon followed by same febrile excitement of brain in a greater degree; disposition to talk, external vessels of head and face more full; head felt large and eyes were shining. With these symptoms there was intolerance of pressure on any part; could not rest back against chair without having pain from pressure, was obliged to change sitting posture every few m. from same cause, even feet became painful from resting on floor. Hands felt large and were tremulous, with peculiar thrilling sensation through both hands and feet, somewhat like "going to sleep;" saliva rather abundant, somewhat viscid and flat-tasting; "gone" empty feeling in stomach. These sensations were soon followed by dull pain of sacrum, compounded of soreness as from pressure and fatigue as from long stooping, soon extending round hips and down r. leg. Dined at 3.30 with tolerable appetite, read for 1 h., and then lay down, but experienced difficulty of breathing, which in about ½ h. became so great that he was obliged to rise, feeling that if he went to sleep he would immediately have nightmare and suffocation. This dyspnœa was not so much constrictive as paretic, such as he had only felt during a fever. Walking out in e., legs felt weak and vacillating; after returning, rather painful weariness of back and legs (especially r.), and of r. shoulder and arm; also constant want to take a full breath. Went to bed feeling utterly exhausted. Next d. rather weak and indisposed to think; heat of face; during e. uneasy, restless, could confine himself to nothing, wanted to be moving from place to place, unhappy; mind seemed weak, rather confused. Felt compelled to retire as early as 9, and slept soundly till 7.30 next m. On 12th felt weak and tremulous, as though recovering from illness and as yet incapable of making any vigorous mental or physical exertion. Felt stronger on walking in open air, which, however, produced continual and profuse lachrymation.

* "I omitted to mention in its place, that each time after waking from the nightmare the parts on which I lay soon became exceedingly painful, especially the sacral region and hips. After lying for not more than 10 m. upon the back, the sacral region became intolerably painful, as though I had lain on the barn floor all night, and inducing the conviction that a short continuance of the position would induce bedsores. When turning on one or other side, the same sensation would be produced on the hips, obliging me at last to turn on my face to relieve these parts. * * * In regard to the nightmare, it is proper to say that I was formerly considerably subject to it, but for many years have never had it, except when sleeping on my back, or perhaps very rarely when on my left side. In all the instances recorded I was sleeping in my usual position, on my right side."

Has been constipated from beginning of proving until now, when bowels have resumed their usual condition. Symptoms gradually subsided during next 3 d. (*N. Amer. Journ. of Hom.*, vi, 228.)

2. Dr. S. R. Beckwith took unknown quantity, and reports as effects :—Slight nausea, with increased heat ; slight dizziness and languor ; muscular debility ; inactive mind ; restless feeling, without disposition to move ; burning sensation over whole body, followed by perspiration, vomiting and diarrhœa, stools dark ; debility ; loss of appetite ; slow, round, full pulse ; filthy taste with flow of saliva ; constriction and oppression of chest ; drowsy, stupid, tired feeling ; aching in limbs ; pain in back extending to sacrum. (*Ibid.*)

3. Dr. P. B. Hoyt also gives no information as to doses taken, and reports his symptoms as follows in the order of the schema :—Vertigo ; dull pain in front of head ; sharp pain over r. eye, then over l. ; dull pain in both temples, growing more and more intense ; dull stupid feeling all over head, with severe pain at occiput ; head feels heavy, as though he could not sit up ; headache day and night, causing sensation of wildness and increased by noise ; cannot confine mind, a sort of wild wandering feeling. Soreness of eyeballs ; eyes feel swollen, with burning and slight lachrymation ; congestion of vessels of eyes, which look red and inflamed. Dulness of hearing. Catarrh, dull pain at root of nose. Face feels flushed and very hot, cheeks burn. Profuse flow of sweetish-bitter saliva, followed by a glutinous substance ; lips stick together ; tongue coated at first white, with reddish papillæ here and there, followed by a yellowish-brown coating in centre, edges being red and shining ; tongue feels thick and swollen ; numb pricking sensation of tongue ; bad taste in mouth. Throat feels swollen and full, with oppressed respiration, and sharp pains in chest on taking a long breath. Slight nausea and want of appetite ; constant desire for water. Constipation ; fulness of abdomen ; flatulence ; pain in hypogastrium ; soreness of abdominal muscles, as if from cold or coughing violently. Urine not very copious ; of dark red colour ; a sort of burning when urinating. Extremities feel hot, except feet, which are cold ; stiffness of all joints, as if strained. Surface of whole body feels hot and dry, with occasional chill, principally up and down back, as if ague were coming on ; chill all d., with fever at n., and rheumatic pains and soreness all over body ; pulse at first accelerated, afterwards very low and faint. Restless, does not sleep quietly, wants and yet does not want to get up ; dreams about fighting and disputations, but always comes off best. All symptoms increased by taking a glass of beer ; many continued 4 or 5 d. (*Ibid.*)

4. W. Rowley, æt. 20 ; dosage also unknown. After 3rd dose headache, first in front, afterwards behind ; feeling of great prostration ; flashes of heat from small of back in all directions ; nausea. On 3rd d. severe headache in front ; low spirits, prostration ; pain in stomach and hypochondrium, passing down to r. iliac region ; drowsiness, disposition to have eyes closed ; pulse slow and weak. (*Ibid.*)

5. L. W. Sapp, æt. 21. After 1st dose (quantity unnamed) thirst and flashes of heat over face. General heat after going to bed ; unusually sound sleep ; in m. dull stupid feeling after breakfast ; slight

yellow coat on tongue; dull pain in abdomen on pressure; sallow appearance of countenance; bowels costive. Dull heavy aching in lumbar region on going to bed; dreams at n.; next m. aching and dull heaviness in head after rising; tongue coated white and slightly congested; heat in forehead; rheumatic pains in r. side; loss of appetite; pulse 70, rising about 2 p.m. to 100; chill over back while sitting by hot fire in forenoon; indescribable sick feeling all over; great languor; pains in stomach and feeling as if there were a hard substance there. In e. cramp in stomach and chills over back; great chilliness on going into open air; soreness in front part of head and on moving eyes. Deep sleep till 3 a.m.; on waking, flashes of heat and feeling as if perspiration would break out; soreness in region of liver. In m. swelling of epiglottis (?); soreness in brain, worse on stooping, and in muscles of neck; urine high coloured. (*Ibid.*)

6. J. E. SMITH, æt. 32. Took 3 doses (quantity not stated) at bedtime on Feb. 8th, 9th, and 11th. On n. of 8th heat and burning of lower extremities, so intense as to prevent sleep most of n.; when asleep continual dreaming; bowels loose next m. (very unusual); slight dulness in brain all d. N. of 9th sleepless and restless; brain feels numb, with occasional stitches or shocks in various parts of head. Taking none on 10th felt nearly well on 11th. Dreamed all that n., in dreams triumphing over all opposition; in m. headache in front part of brain, inability to memorise as usual; stitching pain in cardiac end of stomach; throbbing in heart, so as to be distinctly heard. Slept well at n.; on 13th diarrhœa, loud borborygmi; pains in liver; soreness in front of thighs, worse after sitting awhile; darting pain in l. knee and ankle; twitching in l. deltoid, which has been constant since taking 1st dose, and to-day the same in l. latissimus dorsi; slight headache, with bruised feeling in forehead; lachrymation on going into open air; general tired, bruised, sick feeling in all parts of body, but not very bad. On 14th slight erratic pains in various parts, bowels confined. On 15th, constipation severe, with hæmorrhoids, quite troublesome: took dose of nux vom. On 16th bowels regular, hæmorrhoids gone. (*Ibid.*)

7. Dr. CONRAD WESSELHOEFT, May 17th, 1869, took 3 dr. of 5th dil. at 7 a.m., and seems to have repeated dose daily, though he does not say so. During ½ h. after 1st dose aching pain of occiput, extending from ear to ear, and from nape to vertex. Same occurred on 20th, and from 19th to 21st he felt great drowsiness all d., going to sleep at any time, with great disinclination to mental exertion. On 22nd, taking no medicine, felt much better all d.* (*Pub. of Mass. Hom. Soc.*, iii, 456.)

8. *a.* Dr. BURT, in good health, took, Oct. 12th, 10 dr. of tinct., at 10 a.m. At noon feeling of tightness across forehead, with pain over r. eye. At 3 p.m., severe pain every few m. at cardiac end of stomach. At 4 p.m., 15 dr. Frontal sensations yet more pronounced, and frequent sharp shootings through bowels. At 8 p.m., 20 dr. Frequent pressive pain over r. eye; constant pain in region of gall-bladder, very severe when walking,; dull pain in epigastrium; dull

* DR. WESSELHOEFT writes:—"Soon after commencing, I found my physical condition unfitted for a reliable proving; but I herewith furnish what I have obtained." Under these circumstances, we think it safest to print his results in small type, as not free from uncertainty.—EDS.

drawing pain in r. groin; legs ache. At bedtime, 25 dr. Slept well till midnight, not at all since; dreamed of being chained down across mouth. Frequent epigastric pain, much increased by turning over, to which nevertheless he was constantly impelled; drawing pains in arms and legs; slight rumbling in bowels. Next m., tongue coated yellow along centre. At 10 a.m., 30 dr. Dull pressive pain in forehead, and sharp pains in both temples; dull pain in r. hypochondrium and small of back; drawing pains in legs; slight rumbling in bowels, with mushy stool. At 2 p.m., 35 dr., and at 9, 40 dr. All afternoon and e., constant and severe pain in epigastrium and r. hypochondrium, of drawing character, worst when walking; pain causes numb feeling to pass all over body. Dull pain in forehead; drawing pain in calves. Urinated 40 oz., acid. Had a very restless n., with frightful dreams. On 14th, without further dose, continuance of dull pain in abdomen, involving umbilicus; tongue yellow; soft stool; urine 26 oz., acid. N. the same; but at 9 next m. felt quite well. Took 40 dr. at 9 a.m., and pains returned, extending to spine. At 5 p.m., 50 drs. Skin of forehead much contracted; severe drawing pains in r. groin and testicle, and in r. foot. Urine 28 oz., acid. At 9 p.m., 60 dr. Slept till 2 a.m., then could sleep no more; took 40 dr. at 4 a.m. A good deal of epigastric pain all n., but felt quite well next m. Injected 10 drops under skin of l. arm over biceps. In 10 m. skin of forehead felt as if it would be pulled to back part of head, with numb feeling of forehead and face; in 15 m., feeling as if he would vomit, with some shooting pain in l. abdomen and loin; in 30 m., sensation as if forehead would be pressed in; slight abdominal pains as before; frequent gulping up of air; slight pressive headache, and dull pain in loins. At 2 p.m. took 100 dr. Dull heavy pressive headache; at times sharp pains in temples; heavy aching in stomach and liver, with very hot sensation there; soft stools. At 9 p.m. took 120 drops. Felt very weak and trembled a good deal. Pains continue,—that in r. hypochondrium (gall-bladder) so severe on walking as to make this almost impossible; severe drawing pains in calves. Urine 42 oz., acid. At bedtime took 106 dr. Slept well till 2 a.m., then very restless till m., with frightful dreams. Next m., dull heavy frontal headache; constant dull umbilical aching, aggravated by deep inspiration; dull lumbar aching, very severe when walking; tongue yellow along centre; flat taste. At noon, 150 dr. Pains in head and r. hypochondrium as before, quite sharp at times; and after 200 dr. at 3 p.m., frontal tightness as before.

b. Fearing that all medicinal properties of drug were not in tinct., he chewed this d. (Oct. 17th) 30 grs. of green bark of root. Constant burning distress in epigastrium, with severe colicky pains in umbilical and especially in hypogastric region every few seconds, with rumbling in bowels and desire to vomit, but no nausea; soft stool; drawing pains in r. hip and both calves. Urine 31 oz., acid. Slept till 3 a.m., after which could do so no more, but had to toss about constantly; dull, hard headache, very much worse on moving, with frequent sharp pains in temples; constant umbilical aching. At 4 a.m., 40 grs. In m., tongue yellow; flat bitter taste; tonsils congested; drawing pains

in legs; all forenoon great distress in stomach and bowels, with desire to vomit; soft mushy stools. At 11 a.m. took 55 grs. At 1 p.m., eyes felt as if pressed into head, with great confusion of sight; could not fix objects at first look, everything seeming to be moving; difficult to keep eyelids open. Fauces and tonsils very much congested; great distress in epigastric and umbilical region, with much rumbling; cramp in calves on every movement; felt very weak and faint. 8 p.m., have had frequent pains in r. temple; eyes smart and ache severely; tonsils same, with frequent desire to swallow, which produces pain in root of tongue; constant aching distress in abdomen as before, with rumbling, weakness, and faintness; papescent stool, with much mucus; legs tremble and ache. Urine 33 oz., acid. A very restless n. Next m. (19th), head, mouth, throat, and abdomen as before; also back and hips are stiff, and ache severely, with drawing pains in l. leg. These symptoms continued all d.; urine of whitish colour, neutral. Slept well. Tongue next m. still yellow; gums have been very sore for 2 d., they bleed freely on pressure; throat red; slight backache. Stool, absent yesterday, was natural to-day. Felt very gloomy for several d.

c. Oct. 28th, feeling well, at 10 a.m. took 4 grs. of baptisin.* Severe pain in region of gall-bladder, lasting 1 h.; constant slight umbilical pain; natural stool. Later in d. took 6 grs. All e., dull frontal headache, with smarting of eyes and drawing pain down nose; abdominal aching in hypogastrium also, and there at times very sharp. Slept well, and on 29th, feeling quite well, took 10 grs. at 10 a.m. Umbilical pain all d.; in afternoon occasional drawing pains in r. wrist and l. ankle, and in e. constant dull frontal headache. Took 14 grs. Slept well till 1 a.m., then woke with severe cutting in hypogastrium and loud rumbling; after this very restless, with frightful dreams. Next m. tongue and mouth as before; soft papescent stools. Inguinal glands on r. side very much swollen, and very painful when walking. (HALE, *New Remedies*, 2nd ed.)

9. Dr. HADLEY took, Jan. 26th, 10 dr. of tinct. In a short time, dryness and roughness of pharynx, extending to nares, as from an astringent, followed after a little by increased secretion from parts, especially from pharynx; dull pain at pit of stomach, and constriction of diaphragm. On 28th, at 10 a.m., took 15 dr.; same sensations in fauces, stomach, and diaphragm; dull pain in sternum; pain in r. lung, continuing some time, less in l., but some soreness; slight pain in r. frontal sinus; increased flow of saliva in e. On 30th, at 10 a.m., 20 dr. In a short time increased secretion of saliva, followed by slight pain in r. lung and r. frontal sinus. On Feb. 4th, 25 dr. Dryness of fauces followed by increased secretion as before, and lung pain. In afternoon, dull pain in anterior lobes of brain, and in r. frontal sinus; sensation of weight and oppression in præcordial region, with feeling of unsatisfied breathing. At 6 p.m. oppressed breathing, cough, soreness of r. lung, and sneezing; increased secretion from bronchial tubes and

* A "concentrated preparation," made by extracting all active elements of plants, and recombining them in their proportions.—EDS.

fauces, with mucous expectoration. (*N. Y. State Hom. Soc. Trans.*, iii, 325.)

10. Miss HADLEY, æt. 20, took 15 dr., which produced severe pain in frontal sinuses, followed by sneezing. In afternoon, tightness of chest, fulness of throat, difficulty of breathing, and quite troublesome disposition to cough; pain in whole anterior part of head; prostration and perspiration on least exertion. In e. respiration freer and cough gone; lungs feel easier and stronger than usual. [The last observation, and the statement that "she was cured by this proving of a troublesome cough of long standing," lead us to put this experiment in small type.—EDS.] (*Ibid.*)

11. Drs. BAILEY and PALMER reported that they had taken tincture in doses ranging from a few drops to 600, without any decided effect. (*Ibid.*, p. 316.)

12. One of the earliest results noticed in giving this drug* was a most copious flow of saliva, followed by sore-throat, with scraping and burning; a raw sensation in pharynx followed, with a large amount of viscid mucus, and, much to my surprise, well-developed ulcers in the mouth; constrictive feeling in throat, causing frequent efforts at deglutition; pricking sensation in upper pharynx; dulness in head; vertigo and sensation of weakness in entire system, especially in lower limbs, with weak knees; confused feeling in head; surface of body chilly; hoarseness to such an extent as to require the utmost efford to be understood; tickling in throat, constantly provoking cough; thick mucous discharge from nose; swimming sensation like that experienced before operation of an emetic; frequent eructations; nausea; distension of abdomen; feeling as though it would be a relief to vomit; rumbling in intestines; tongue feels as though it had been scraped, and same sensation extends through fauces. (W. L. THOMPSON, M.D., *N. Am. Journ. of Hom.*, v, 547.)

13. *a.* A. E. WALLACE, M.D.—Sept. 17th, 1870, at 2 p.m., took 10 dr. of 1_x dil. 3.—Severe frontal headache with pressure at root of nose. Pain in l. shoulder, extending down arm. Stiffness and lameness of cervical muscles. Head feels very heavy, with pain in occiput. Painful weariness of whole l. side of body. Soreness of scalp. Sore throat extending to posterior nares. Numbness of l. hand and forearm, with prickling. Duration of symptoms about 2 h.

b. Nov. 13th, 4 p.m., in perfect health, took 20 dr. in ℥j of water of same preparation. 4.20.—Frontal headache, with feeling of fulness and tightness of whole head. Neck stiff and lame. Severe pressure at root of nose. Head feels large and heavy. Heavy pain at base of brain. Pain in l. shoulder and arm; numb prickling of hand and arm, worse by movement; sharp darting pain through fingers. Tightness of chest, and desire to take deep inspiration. Throat sore and feels contracted; soreness extends to posterior nares. Sneezing, and feeling as though he had taken a severe cold. Eyeballs feel sore and lame on moving them. Lameness of muscles of back and chest, particularly when moving head. Pain in hips and legs, with numbness. Pain in neck, unbearable on moving head. L. foot numb and prickles. Feels weary, and is obliged to lie down. 6.30, feels as well as usual, no symptoms remaining.

c. Dec. 5th, 3 p.m., fasting, took 30 dr. of same. 3.20.—Frontal headache, with pressure at root of nose. Head full and feels heavy. Pain in base of brain, and lameness and drawing pain in cervical muscles. Drawing pain of shoulders and arms, more in l. Oppression of chest and difficult breathing. Pain through l. chest. Wandering pains in all limbs, with dizziness. Feeling as though he had taken cold; throat sore, and sneezed several times. Feels stiff and sore all

* Manner not stated.—EDS.

over; dreads to move. Burning on top of head, and soreness of scalp. Prickling of hands and feet, with numbness, worse on motion. Paralysis of whole l. side; l. hand and arm entirely numb and powerless, foot and leg prickly, and can move but little. Burning and prickling of l. side of face and head. Pressure at stomach and belching of large quantities of flatus. 6, symptoms passing away; feels drowsy and must sleep. 8, feels well. 9th, feels sore and stiff about shoulders and chest. The jar of his buggy is painful, otherwise he feels well; has noticed no other symptoms.

Five or six weeks afterwards livid spots appeared all over body and limbs, size of pea to three-cent piece. No sensations. Never had the like before. Thickest on body; no elevation; irrregular in shape. (*Med. Investigator*, 1873, p. 623.)

III. *Experiments on animals.*—1. In a cat poisoned with baptisia Dr. Burt found small and large intestines congested and filled with bloody mucus. (HALE, *op. cit.*, p. 143.)

2. In dogs, Dr. Rutherford found baptisin an undoubted, but moderate, hepatic stimulant; it increases also the peristaltic movements and the secretions from the intestine. (*Brit. Med. Journ.*, 1877, i.)

BARIUM.

Including *Baryta acética*, baric acetate, Ba $(C_2H_3O_2)_2,H_2O$.; *B. carbónica*, baric carbonato, Ba Co_3; and *B. muriatica*, baric chloride, Ba Cl_2, $2H_2O$.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part II of original, vol. of translation. Contains 795 symptoms from self and 8 fellow-observers, obtained from B. carbonica and acetica, with 4 from an author who used B. muriatica (see II, 12).

2. Vertigo, objects appeared to turn round. Head so heavy he could not remain up. Eyes became quite stiff, he could not move them. On side of tip of nose a broad red pimple, with somewhat smarting, tickling, sore sensation, with small fine pricks when touched and rubbed, but the sensation does not lead him to scratch. Toothache, at first fine shooting, then (jerking) throbbing, synchronous with pulse, especially after sleeping and after midnight, which makes him sit up in bed, but which is neither aggravated nor ameliorated either by touching, biting, or by cold water. Putrid taste in mouth, the food also tastes putrid. Stools covered with mucus. Stools greenish and chopped. Internal heat at top of chest. Painless twitching in arm, especially at n. Cramps in toes. Smarting pain in skin. So heavy in body he could not remain up, like debility. (IBID., *Arch.*, iii, 3, 188 *et seq.* From B. mur., without explanation.)

II. *Poisonings.*—1. *a.* A patient of Dr. LAGARDE's took, by mistake, a draught containing 10 grms. of B. acetica. When seen 1 h. later he was lying stretched on back, deprived of all voluntary motion, with pale face, haggard features, drooping eyelids, normal pupils. Skin was covered with profuse clammy sweat, voice faint, and speech unintelligible. Pulse 125—130, very small; heart-sounds muffled; respirations incomplete, more frequent than normal; sounds scarcely distinguishable. Tongue was cold, slightly blackened, but still moveable. Patient complained of a nauseating taste. Epigastrium was not sensitive to pressure, nor were colics present; there was, however,

belching and inclination to vomit, also involuntary diarrhœa and micturition; urine clear and profuse. Friction, warmth, and stimulants were unavailing; and patient died within 12 h. of taking draught, in full possession of senses, but with absolute paralysis of all voluntary muscles.

b. Autopsy showed congestion of brain and its membranes; cord not examined. Muscular tissue of heart was soft, and its cavities filled with black fluid blood. Lungs congested, and in centre an apoplectic patch of size of hen's egg. Mucous membrane of stomach showed here and there dark red patches and swollen veins. (*Allg. Med. Chir. Zeit.*, 1873.)

2. Dr. Lagarde tested solution himself (in what quantity is not stated). After 3 h. discomfort and general weakness, with lightness of head, set in. In upper extremities and on scalp and skin of face, formication was felt. He was obliged to go to bed, and was immediately attacked with nausea, belchings of wind, and liquid diarrhœa. After 3 h. more weakness had perceptibly increased, and l. arm could no longer be moved, though sensation was intact; temperature and transpiration of skin were normal; pulse about 5 beats slower than usual. He found it impossible to pull the bell or leave the bed; and 8 h. after taking dose upper and lower extremities were almost paralysed. To previous symptoms was now added copious vomiting, which was repeated several times during n. Paralysis of muscles still increased, and spread first to abdomen, then to chest and neck, and last to sphincters of bladder and rectum. Coughing, spitting, and even utterance of polysyllables became difficult; respirations were laboured, and urine and fæces were evacuated involuntarily. Pulse fell to 56 and for a short time became irregular; temperature of skin now seemed lower than usual. A few red spots showed themselves in thorax, but disappeared after a few d. There was constant thirst, relieved by pieces of ice in mouth. No pain was felt, but the experimenter, with full consciousness and unimpaired sensation, experienced all the symptoms of impending death. (*Ibid.*)

3. A young woman swallowed half a teacupful of the powdered carbonate stirred up with water. After 2 h. she experienced dimness of sight, followed by double vision, ringing in ears, pain in head, throbbing in temples, sense of distension and weight at epigastrium, and palpitation. A little later came pains in legs and knees, and cramps in calves; vomiting (twice); hot dry skin; flushed face; full hard pulse, 80. During n. 15 motions, little or no sleep. Next d. surface still hot, but perspiring profusely; slight pain about pharynx; tongue moist but white furred. After 1—2 d. cramps in limbs increased, with sense of weight in them, and soreness to touch. Symptoms continued with but little change for a long time, especially pains in head, l. side, and epigastrium; also severe and long-lasting palpitations. (WILSON, *Lond. Med. Gaz.*, xiv, 487.)

4. A family, consisting of parents, daughter, and female friend, partook of some meal which contained 10 per cent. of carbonate, with a minute quantity of sulphate; a dog and a canary bird also ate some. Bird died in 5 m.; immediately after dog was taken with violent

diarrhœa; and 15 m. later the four human beings became sick, one woman being affected like dog. The three women drank some milk, vomited immediately, and felt relieved. Father experienced only rumbling in bowels; did not take milk till later (10 p.m.); this was followed by vomiting with diarrhœa, and at 4 a.m., on attempting to go to closet, he fell to the ground with symptoms of collapse. In m. vomiting and diarrhœa ceased, but gave place to paralysis, extending from below upward, so that at 10 a.m. he could only nod his head. At 2 p.m. physician found face red, speech difficult; loss of voluntary motion in limbs, but sensation intact; reflex excitability increased; sphincters normal; respiration rapid, with tracheal râles; sensorium free. Pulse and temperature normal; no pain, even in stomach. At 9 p.m. he died. *P.M.* showed a most remarkably dark colour of grey substance of brain; stomach and intestines were normal. (REINCKE, *Viert. f. ger. Med., &c.*, 1878, xxviii, 248.)

5. A healthy barmaid, æt. 22, took a teaspoonful of bar. mur. at 12.30 p.m. In ½ h. became badly sick all over, sharp burning pains in stomach and bowels, vomiting and purging with much straining. Got an emetic. Seen at 2 p.m., was lying on back, face pale, anxious, eyes deeply sunken, surface of body very cold, heart's action feeble and irregular, pulse hardly perceptible, tongue natural and warm, muscular power of extremities almost gone, sensation unimpaired. All fluids vomited mixed with ropy mucus. Pains in stomach and hypogastrium, lightness of head, singing in ears, twitching of face, and twisting of legs and arms. Was given Epsom salts, heat to extremities, sinapisms to abdomen, &c. At 9 p.m. vomiting and purging gone, colour returned to lips, warmth to surface, p. 60, regular, and pretty strong, still complained of twitching and twisting, and of noise in ears. At 2 a.m. found purging returned, all voluntary muscular power annihilated, except that she could speak feebly, and could swallow. Slow and laboured respiration with copious effusion into bronchial tubes, loud loose râles all over chest. Perfectly sensible, fell asleep for 1 h., breathing all the time becoming slower and more laboured, and countenance dusky. Awoke about 3 a.m., muttered something and became convulsed, continued to be agitated by the most frightful paroxysms for 2 h., when she died. During fits had several watery motions. (WALSH, *Lancet*, 1859, i, 211.)

6. A medical student, æt. 19, took at 8.30 a.m. as he supposed 3 teaspoonfuls of Epsom salts, which was afterwards found to be bar. mur., after which he vomited four times and had four stools. Seen at 10 a.m. he was very weak and prostrated, complained of pinching in abdomen, nausea and urging to stool. P. soft and regular, tongue clean. Ordered 5 drops of laudanum and infusion of peppermint every h. and a cataplasm to abdomen. In ½ an h. the upper and lower extremities were icy cold, p. 54, irregular, soft, tongue clean, icy cold, great weakness, unable to move hands or feet, sensibility intact, incomplete paralysis of l. eyelid, speech weak, indistinct, complains of violent cutting and pinching in abdomen, which came on in fits every 2 m., and was attended by loud groaning; abdomen not sensitive to touch. Had vomited three times, stools ceased. He got a lemonade made with

sulphuric acid from 11 a.m. onwards. No alteration of state during d.; the treatment pursued was poultices to abdomen, sulphuric acid internally, and 3 clysters of castor-oil. At 5 p.m. the extremities were warm, pulse rose to 84. 8 p.m., alternate heat and cold of limbs, quicker and slower pulse, slight sweat, no more vomiting and purging. N. pretty quiet, pains much diminished, no sleep. M. pretty lively, pains slight, pulse 80, warm, could move arms. No urine passed since yesterday m., a moderate quantity of clear urine now drawn off with catheter. He got a clyster of Epsom salts with croton oil. Chicken broth for dinner. Four stools occurred. He could move arms and legs, the paralysis of eyelid was gone, there were no more pains in abdomen, he slept well, and next morning was quite well. (C. WOLFF, *Casper's Wochenschr.*, 1850, p. 591.)

7. A woman, æt. 42, took ℥ss by mistake for spasms of stomach. Nausea, retching, distortion of facial muscles, jerking in hands and feet. Violent vomiting of slimy watery fluid. Incessant spasmodic retching, great inward anxiety compelling her to cower together. Death in the midst of the most violent convulsions after 2 h. (WACH, *Henke's Zeitsch. f. Staatsarzneik.*, 1835, xxx, 1, 21.)

8. A young woman swallowed 1 oz., and immediately felt burning in stomach, vomited, got headache, deafness, convulsions, and died in 1 h. (*Journ. of Sc. and Arts*, 1818, p. 582, from WIBMER.)

9. In very small doses ($\frac{1}{6}$th to 3 grs.) causes feeling of warmth in stomach, rising to chest and head, slight colic, diarrhœa, cutaneous and urinary secretions increased. On leaving off for 24 h. there generally occurs a febrile state, thirst increased, anorexia, tongue and mouth become dry, swallowing difficult, p. quick, full, heat increased, face red, weakness, &c. This state lasts generally 7 d., and during this time there sometimes occurs catarrh of eyes, ears, nose, inflammation of skin, &c.; inflamed and suppurating glands show increased irritation, pus flows more abundantly, their hardness and swelling diminishes. Wounds become red, cicatrize. Large doses cause anxiety, vomiting, colic, diarrhœa, inflammation and bleeding of bowel, &c. (SCHWILGUÉ, *Mat. Med.*, i, 409, from *Ibid.*)

10. A small quantity dissolved in water and taken into stomach causes sensation of agreeable heat. In a case of chronic inflammation of knee, 10 drops, twice a day, of a solution of baryta in hydrochloric acid caused vertigo, prostration, quick pulse, increase of heat, and loss of appetite. A common effect in all his patients was to increase the urinary secretion. (CRAWFORD, *On Muriated Baryta*, 1789.)

11. In moderate doses B. m. has no remarkable action on stomach, but a too large dose can cause nausea, retching, violent vomiting, anxiety, palpitation of heart, vertigo. In 2 persons where there was no vomiting there was anxiety that lasted several days. In some it causes colic (especially when worms are present), also sometimes several liquid stools, and if its use is continued persistent diarrhœa. It seems rather to retard the pulse. It frequently causes increased urinary secretion. Slight skin eruptions are often seen. (HUFELAND, *Erfahr. üb. die Kräfte u. d. Gebrauch der salzsaur. Schwererde*, Erfurt., 1792.)

12. For furious patients nausea-producing medicines are recommended. "An excellent medicine for causing nausea is bar. mur., and it seems to have a special effect on the mind. I saw scrofulous children whom I treated with this remedy become anthropophobic, cowardly, forgetful, lose their power of attention when reading, and the wish to play; and I have observed it produce this depressed disposition in wildly excited maniacs." (NEUMANN, *Krankh. d. Vorstellungsvermögen.*)

13. A girl of 18 got 40 drops of a solution of ʒss bar. mur. in ℥j water; this caused great heat of body. In doses of 95 drops she was in a dry heat all d., pulse much excited, and head much affected. (DÜRR, *Hufeland's Journ.*, ix, 3, 184.)

14. KOHL gave to a patient who was suffering from a chronic swelling and induration of r. testicle, 40 drops 4 times a d. of a solution of bar. mur. ʒj in aq. ℥ij. The hardness and swelling of testicle gradually declined, but after several weeks' use of the medicine he had salivation, very profuse, so that all his teeth became loose, the salivary glands and palate were swollen, and the patient smelt from his mouth as if mercurialized. There was constant urging to urinate, the urine often passing involuntarily, and with great pain. This attack passed off in 14 d., and on repeating the bar. mur. no similar symptoms occurred (*Ibid.*, vii, 3, 176.)

III. *Experiments on animals.*—1. *a.* 10 grs. of muriate of barytes, rubbed very fine and moistened with 2 drops of water, were applied to 2 wounds in thigh and side of rabbit. In 4 m. he was evidently under influence of poison. In short time he became giddy; then his hind legs were paralysed, and he gradually fell into a state of insensibility, with dilated pupils, and lay in general motionless but with occasional convulsions. Pulse beat 150 in m., but feebly, and occasionally intermitted. He was apparently dead in 20 m. from time of application of poison; but on opening chest heart was found still acting, and nearly 3 m. elapsed before its action had entirely ceased.

b. ℥iss of saturated solution of muriate of barytes was injected into stomach of full-grown cat by means of elastic gum tube. In a few m. it operated as an emetic. The animal became giddy, afterwards insensible, and lay with dilated pupils, in general motionless, but with occasional convulsions. At end of 65 m. from beginning of experiment, he was apparently dead, but heart was still felt through ribs acting 100 times a m. A tube was introduced into trachea, and lungs were inflated about 36 times a m., but pulse sunk notwithstanding, and at end of 7 m. circulation had entirely ceased.

c. From these experiments I was led to conclude that the principal action of muriate of barytes is on the brain; but in the first the pulse was feeble and intermitting; in the second, although artificial respiration was made with greatest care, circulation could not be maintained more than a few m. These circumstances led me to suspect that although this poison operates principally on the brain it operates in some degree on the heart also. Further experiments confirmed this suspicion. In some of them the pulse soon became so feeble that it could be scarcely felt, and its intermissions were more frequent; but in all cases the heart continued to act after respiration had ceased; and the cessation of the

death. When I employed artificial respiration, after death had apparently taken place, I seldom was able to prolong the heart's action beyond a few m. In one case only it was maintained ¾ h. I never by these means succeeded in restoring animals to life, although experiments were made with greatest care and in warm temperature. In some instances, after artificial respiration had been kept up for some time, there were signs of functions of brain being in some degree restored; but pulse, notwithstanding, continued to diminish in strength and frequency and ultimately ceased. I shall detail one of these experiments, as it serves to illustrate double action of this poison on nervous and vascular systems. Some muriate of barytes was applied to wound in side of rabbit. Usual symptoms took place, and at end of an h. animal was apparently dead, but heart still continued to contract. He was placed in temperature of 80°, and a tube being introduced into nostril, lungs were artificially inflated about 36 times in a m. When artificial respiration had been maintained for 4 m. he appeared to be recovering; he breathed voluntarily 100 times in 1 m. and showed signs of sensibility. Artificial respiration was discontinued. Voluntary respiration continued about 9 m., when it had ceased, and animal was again apparently dead; but pulse continued strong and frequent. Lungs were again artificially inflated. At end of 4 m. animal once more breathed voluntarily 100 times in 1 m., and repeatedly moved his limbs and eyelids. Pulse became slower and more feeble. In few m. voluntary respiration again ceased and artificial respiration was resumed. Pulse had fallen to 100, and was feeble. Animal again breathed voluntarily, but he ceased to do so at end of 5 m. Lungs were inflated as before, but he did not give any sign of life, nor was pulse felt afterwards. On opening thorax heart was found to have entirely ceased acting. Probe having been introduced into substance of spinal cord it was found that by means of voltaic battery powerful contractions might be excited, not only of voluntary muscles, but also of heart and intestines; from which it may be inferred that muriate of barytes, like arsenic, affects the circulation by rendering heart insensible to usual stimulus, and not by destroying altogether power of muscular contraction.

d. Muriate of barytes affects stomach, but in less degree than arsenic. It operates as an emetic in animals that are capable of vomiting; but sooner when taken internally than when applied to wound. In general, but not constantly, there are marks of inflammation of inner membrane of stomach, but not of intestine. In many instances there is a thin layer of dark-coloured coagulum of blood lining whole inner surface of stomach and adhering very closely to it, so as to have a good deal of appearance of a slough; and this is independent of vomiting, as where I met with it it occurred in rabbits. The same circumstances, from which it may be inferred that arsenic does not produce its deleterious effects until it has passed into the circulation, lead also to that conclusion with regard to muriate of barytes. (BRODIE, *Phys. Researches*, p. 91.)

2. The experiments of Brodie have since been amply confirmed by functions of the brain was therefore always the immediate cause of

Orfila and Gmelin. The latter found voluntary muscles destitute of contractility immediately after death; yet heart continued to contract vigorously for some time, even without application of any stimulus. From experiments made on horses by Huzard and Biron, by order of the Société de Santé of Paris, it appears that the chloride, when given to these animals in the dose of ʒij daily, produced sudden death about the 15th d., without previous symptoms of any consequence. (CHRISTISON, *op. cit.*)

3. *a.* Barium is reckoned among the poisons which exert a local irritating as well as a constitutional action; evidently only because among the symptoms of acute barium poisoning vomiting and diarrhœa are seldom wanting. Since, however, the anatomical lesions characteristic of local irritation are usually absent, and since the symptoms ascribed to it are also, as it appears, observed after the direct introduction of the poison into the blood, we see no ground for endorsing the assumption that B. exerts a local irritating action.

b. Concerning the real cause of the poisonousness of the B. compounds we are absolutely ignorant. Judging from the symptoms, their action must be compared to that of the narcotic poisons.

c. The experiments made on animals prove that the poison exerts an undoubted influence on the circulatory apparatus. Even the older toxicologists called B. a heart-poison, and Cyon has recently demonstrated this property of it by experiments on frogs and rabbits. In mammals cessation of the heart's action after it has been observed by many, and some have even noted lack of excitability of the paralysed heart, when irritants are applied to it. The investigations recently undertaken by Mickwitz (*Inaug. Diss.*, Dorpat, 1874) have defined somewhat more precisely the nature of this cardiac paralysis. Although it is not possible to determine from them whether it is confined solely to the cardiac nerves, or affects also the muscle, still the cessation of action *during systole* has been shown to be a constant phenomenon both in warm and cold-blooded animals; in cats especially, the cartilaginous consistence of the l. ventricle was striking.

d. In this connection the parity of action between B. and digitalis cannot be overlooked. The blood-pressure increases enormously after the injection of small quantities of barium solutions into the veins, but the increase is, as a rule, preceded by a not inconsiderable lowering. The increase often occurs very suddenly, and the pressure not unfrequently becomes 3 or 4 times as great as before; at the same time the pulse becomes much more rapid. Increasing the dose then causes a steep decline in the pressure curve and paralysis of the heart. Division of the spinal cord in the neck does not at all interfere with the development of this phenomenon, and hence it does not appear improbable that the muscular coats of the vessels, as well as the heart, are affected by the poison.

e. The above hypothesis receives support also from the state of excessive contraction into which, as my own investigations show, the smooth muscular fibres of the intestines and bladder are thrown by the poison. Both organs lose their lumen completely in cases of B. poisoning. This peculiarity, which can be recognised even during life

by the exceedingly active peristaltic movements of the intestines that are visible through the abdominal walls, seems to afford also a sufficient explanation of the diarrhœa and vomiting. It indicates a certain preference of B. for the tissues composed of non-striated muscular fibres, or for the nerves in them, which is characteristic of its action. (BOEHM, *Ziemssen's Cycl.*, xvii, 376.)

4. The experiments of Brunton and Cash show that, locally applied, barium salts act like veratrine on muscle, greatly prolonging the length of its contraction; that they cause rapid contraction of the arterioles, and stop the heart in systole. (*Phil. Trans.*, 1884.)

BELLADONNA.

Átropa Belladónna, L. Deadly nightshade. Nat. Ord., *Solanaceæ*.

I. *Provings.*—1. HAHNEMANN, *Fragmenta de Viribus, &c.* Contains 99 symptoms from self and 304 from authors.

2. IBID., *Mat. Med. Pura*, vol. i of original and translation. Contains 975 symptoms from self and 13 others, and 475 from authors.

3. WASSERBERG took pills of extract, and experienced dryness of eyes (with burning in these and in lids), and also of nose, mouth, and pharynx, with thirst. On increasing dose suffered from headache, with confused dulness of mind and senses; reading by artificial light was difficult, lines seeming to skip up and down; felt vinous taste in mouth; pulse weaker and slower than usual; occasionally burning about cardiac orifice of stomach. (STOLL, *Ratio Medendi*, iii, 409.)

4. Twelve persons took extract in doses of gr. $\frac{1}{3}$ to gr. $1\frac{1}{2}$ once daily. With certain exceptions, consequent upon individuality and difference of dosage, the following were constant effects:

a. Digestive apparatus.—Feeble aromatic taste; long-lasting dryness of lips, mouth, and fauces, with desire for drink, only temporarily relieved by drinking; redness of nasal mucous membrane; pappy taste; coated tongue; diminished appetite; nausea and urging to vomit; pressure and spasm at stomach; flatulent distension and flying pains in abdomen, becoming slighter after diarrhœic stools.

b. Vascular system.—At one time quickened, at another retarded pulse; throbbing of heart, carotid and temporal arteries, with heat and redness of face, febrile movements and congestion to head.

c. Nervous system.—Impeded activity of tongue, speaking and swallowing difficult; clouding of senses and hallucinations; humming or singing in ears; sensitiveness of eyes; impaired or double vision; oppression and empty feeling of head; pressive frontal and general headaches; giddiness, reeling as from slight inebriation; general feeling of illness; no desire for anything; lassitude, in one case almost paralysis; varying sense of temperature; restless sleep, sleeplessness, torpor, vivid dreams.

d. Secretions.—Transpiration more or less increased, even to sweat; urine at times darker, increased, then afterwards diminished.

e. Isolated phenomena were:—Strong erections; a papular eruption and a boil on face; itching and moisture of perinæum; short-lasting exaltation of general sensibility with marked cheerfulness and sense of comfort; slight epistaxis. The nervous symptoms commonly appeared after 3 or 4 doses, the gastric and congestive after larger quantities or more prolonged use. (*Wien. Zeitschr. d. k. k. Ges.*, Jahrg. i, Bd. 2.)

5. SCHNELLER, one of the above, gives following details of his experiments:

a. Took alcoholic extract of whole plant in increasing doses; grs. $9\frac{3}{4}$ in 12 d. In 3 h. after gr. $\frac{1}{4}$, pappy taste, with white furred tongue, and feeling of emptiness in stomach. From gr. $\frac{3}{8}$ to 1, besides foregoing, dryness of mouth and larynx, hoarseness, collection of white tough viscid mucus in mouth, with frequent spitting; tongue adhered to palate; appetite diminished. These symptoms developed themselves in the course of an h., and gradually went off during d.; hoarseness was still present in e. After grs. $1\frac{1}{8}$ and $1\frac{1}{4}$, sensation of dryness extended to nasal cavity, with headache. The gastric symptoms increased to violent pressure in stomach, inclination to vomit, swelling of abdomen, formation of flatulence, and pinching in umbilical region. On skin of face a slight pimply exanthema broke out, which suppurated slowly and dried up in a few d. Two final doses of grs. $1\frac{3}{8}$ and grs. $1\frac{1}{2}$ produced all the above symptoms, but in still greater degree. The dryness of mouth was excessive, so much so that he could hardly speak; he desired drinks without actual thirst. The fauces were redder than natural, and burning; in face such an increase of heat that it actually glowed, and became brownish red and turgid. In e. always severe pinchings in abdomen, followed by soft motion; sleep restless. These symptoms continued in a lesser degree two d. after last dose.

b. Took inspissated juice of leaves, beginning with gr. $\frac{1}{8}$, and increasing by same quantity daily up to grs. $1\frac{7}{8}$. The first six doses produced exactly the same symptoms as the same doses of the former preparation. After gr. $\frac{7}{8}$ to $1\frac{3}{8}$ head became confused, vision obscured, nose dry, sneezing occurred, and mucus mixed with blood was blown from nose; besides this, great pressure in stomach, in cardiac region, and pain in the lower part of larynx with hiccough, especially after eating. After grs. $1\frac{1}{2}$ head symptoms increased, pain in forehead and discomfort in great degree; conjunctiva and edges of lids injected; weakness of vision increased, without any dilatation of pupil. Remarkable weakness and relaxation of genitals; frequent call to pass water, which came only after great effort and *guttatim*; urine normal. After grs. $1\frac{5}{8}$ and $1\frac{7}{8}$, besides the above, dilatation of pupils, weariness of lids, ringing in ears, and uncommon sleepiness and dulness of intellect. In 3 d. all had returned to the normal state.

c. A single dose of grs. $4\frac{1}{8}$ was now taken at 7.15 p.m. In less than $\frac{3}{4}$ h. dryness and burning of fauces came on with hoarseness; soon afterwards frontal headache, vertigo, and dryness of tongue. At 8.30 his sight failed him; letters swam whilst reading, and vertigo increased on any movement of body. About 9 there was dryness of nasal cavity and some frontal headache; pupils somewhat dilated; taste pappy; bad

smell from mouth; pinching in umbilical region; fauces reddened; swallowing difficult; pulse rapid. At 9.30 former weakness of genitals observed; micturition caused no pain, but although there was great desire, urine flowed with much difficulty, and only after strong effort. At 9.45 frequent dry sneezing, with tickling, especially in nostril, and frequent burning at back of palate. The n. was restless; burning in head, palate, and fauces considerable; feet ice cold, and scarcely to be warmed; urinary secretion much increased and more easily passed, bright yellow in colour, and presenting nothing unusual. The following m. head still confused; lumps of tough mucus hawked up and blown from the nose, with great diminution of dryness; appetite diminished; tongue furred white. For a week afterwards he had sore-throat, difficulty of swallowing in a great degree, with considerable reddening of mucous membrane of mouth and fauces, and slightly swollen tonsils; there appeared on face, especially on cheek, along with increased heat, red irregular patches of the size of a crown piece, which disappeared and again returned. All these symptoms declined gradually, and at the end of a fortnight nothing abnormal was present (*Ibid.*, Jahrg. ii, Bd. 2.)

6. Flechner. This prover, with two others, began with 2 drs. of tinct. and increased irregularly to 130 drs.

a. A dose of 2 to 30 drs., especially the latter, caused slight dryness of mouth and nose, insipid taste, yellowish fur on tongue, diminished appetite, dulness in frontal region, roaring in ears, weakness of vision, with normal rather contracted pupils; in one person also pain in back, in another stitches in region of shoulder, and in l. side in region of false ribs.

b. From 35 to 60 drs. the above-mentioned symptoms in mouth and fauces increased to a distressing degree. There was burning in hard palate and throat with great redness of these parts, voice became hoarse, intestines distended with gas and painful. Head became dull, there was vertigo, sleepiness, and frequent yawning; restless sleep. In two provers there were also transient stitches in region of heart, and tearing pain in head, region of shoulders, and feet. These symptoms continued, in a less degree, even on the following day when nothing was taken.

c. After doses of 65 to 130 drs. the above-mentioned symptoms increased, with the exception of the flying pains. Eyes became especially affected, there was foggy vision with vertigo, eyes seemed covered with a veil, reading very difficult, conjunctiva injected. Pupils in one case (from 110 drs.) dilated. Lastly, it was noticed that the urinary organs became affected, so that micturition was accompanied with great straining and difficulty.

d. On same d. in which one prover took 110 drs. he made an experiment with a local application to conjunctiva. A few drops were rubbed into r. upper lid, and some trickled into inner canthus. About 15 m. afterwards there was some dilatation of pupil, which increased so that after 2 h. there was scarcely a line of iris to be seen. Margins of the lids became red, conjunctiva slightly injected; even pupil of other eye was somewhat dilated. Iris of r. eye was sluggish in action, vision

very weak, and eyes seemed veiled. On next d., r. pupil was still considerably dilated and vision very much restricted, especially in open air. At same time eye was drawn somewhat upward and outward. On 3rd d., vision was only somewhat weak; pupil remained dilated for second d. (*Ibid.*, Jahrg. iii.)

7. WALTL took gr. iv of dried root. An h. after taking this, staggered in his walk, as if drunk; experienced giddiness, headache, drowsiness; face was remarkably red, sight (as of letters) multiple, not clear, and irregular, pupils much dilated; remarkable and excessive dryness of throat in spite of drinking water and chewing gum. Slept 4 h. and woke quite well.

From vapour of decoction of root twice experienced at unusual hours great desire to sleep. (BUCHNER, *Repert. f. d. Pharm.*, xxvii, p. 71.)

8. PURKINJE took 20 drs. of concentrated aqueous infusion of extract. In ½ h. dryness of mouth, throat, nostrils, and eyes; also of palms of hands. In cardiac region, peculiar sense of anxiety, as when the pulse intermits. Urine and alvine evacuation more scanty; animal food excited sourish taste with subsequent scratching in throat; saliva diminished. (*Neue Bresl. Samml.*, 1829, p. 437.)

9. SCHEIDTWEILER took a morsel of extract. After 45 m. his hands swelled up and became so dry that he could no longer lay hold of things without letting them fall, and forthwith there came an abundant foam into the throat, and a headache lasting 2 d. There was unwonted heat of face; the eyes were much swollen and very tearful. (BUCHNER'S *Repertorium*, viii, 399.)

10. SCHLOSSER. A minute dose of a solution of extract excited—pressive pain on l. supra-orbital arch; immediate annoying weakness of sight in r. eye while writing so that letters seem to swim, and a troublesome feeling as if r. eyelid were paralysed; r. pupil shows a very large circular dilatation; distant objects seem to the affected eye clearer than those close by; in writing he is obliged to close the affected eye to see the letters; while walking in the open air and in bright light vision was weaker, better in darkness and twilight; the contours of moving bodies wanted clearness, and print seemed to affected eye smaller and paler; speedy dimming of the eye occurred when reading; frequent feeling as if the eye swam in tears and of increased heat. Coffee gave relief. (*Allg. hom. Zeit.*, lvi, 147.)

11. *a.* FRANK took increasing doses of 1_x from June 2nd to 4th, 1841. After 50 drs. at 8.45 on latter d., had in 5 m. oppression of head as in commencing intoxication. At 9 cloudiness had increased. He felt determination of blood to the head, throbbing of the vessels, and sense of the heart-beats within the skull [therewith also profuse secretion of watery nasal mucus,* and copious lachrymation]; conjunctiva was injected, and pupils (especially r.) so dilated as to call attention from others. Confusion in head was increased by moving the head, still more when walking. At 10 pupils were much smaller, r. less than l.; at same time he had very transient fine shooting pains in both eyes while walking in open air, with feeling of heat coming against them; to

* He had a chronic nasal catarrh, so brackets all symptoms of the kind.

which in afternoon there was added sleepiness. In e. he took 40 drs., and next m. 50, without effect. On 5th, at 6 a.m., took 60 drs. Immediately cloudiness in head, and thereupon heaviness of eyelids, with feeling as if between them and balls lay a sticky mass, which hindered their natural movements ; sleepiness ; pupils again dilated, r. more than l. [The nose again humid, with much tendency to sneezing.] After 15 m. increase of cloudiness to actual vertigo, greater on movement, with unwonted firmness in legs, especially in calves, and a sort of formication. At 7.30 feeling as if cramp in calves would come on, several times recurring ; sometimes shooting tearing through l. knee, and creeping in l. foot-sole, with still stronger tearing sensation in the l. thenar eminence on upper third of metacarpal bone of little finger. At 8 a.m. drank some coffee, and thereupon followed tearing. in l. calf and along outer side of ulna (in the muscles) to the wrist. The affection of head and eyes had gone off since the coffee. At 10 the vertigo on movement recurred, and therewith heaviness in eyelids and weariness, soon going off. The drawing in l. calf several times recurred. Then came on, after a transient anginose pain, frequent cough with expectoration of scanty white thick phlegm, and thereafter an irritable roughness and dryness in windpipe (*catarrhus laryngeus*). Tearing in arms, hand, and foot continued. Pains in eyes, and also a hot pricking in r. eye, were still felt. Twice an indefinable slight pain suddenly shot through two middle upper incisors. In n. he several times felt, on a small spot on outer side of l. thigh, between knee and trochanter, a slight rheumatic drawing. 6th.—At 10 a.m. each rheumatic drawing ends in a burning throbbing ; on close inspection he found, on a small spot on thigh, a slight erysipelatous redness, which, however, soon passed away. Burning throbbing on inner side of l. forearm near olecranon, and on posterior ridge of radius, increased by touch and slight pressure. These sensations often returned during d. on the same and on other parts, such as just above l. heel, over l. instep, and on a small spot on outside of r. thigh ; and in e. at 6 there was added a similar burning drawing pain at base of scapula, near angle. These spots seemed to be hotter and to be worse on pressure. (The B. seemed especially to affect the flexor surfaces and the fibrous membranes, and to touch l. more than r. side of body.) 7th.—No med. since 5th, all the symptoms disappeared, but at 1 p.m., walking fast, the above-described pain in l. thigh, l. tibia, l. vola manus, r. upper arm, back of little finger, always in parts where there are no muscles. 8th.—At 10 a.m. took 60 drs. on an empty stomach, and in the e. before going to bed 3 drs. of a 50 per cent. attenuation of mother tinct. in water. No result. June 9th, 8.30 a.m., 2 drs. of tinct. ; at noon same dose, and in afternoon 3 drs. Drawing in abdomen as from flatulence, rumbling and escape of wind, feeling as of urgency to stool ; perceptible pulsation through whole body ; glistening eyes, as if swimming in tears ; conjunctiva bulbi shot with many red vessels ; heaviness of lids, especially of r. eye ; at 7 p.m. griping transversely through abdomen just under navel, after which discharge of flatus with rumbling. Drawing on l. tibia near knee ; drawing in hypogastric region over horizontal ramus of os pubis on r. side, occa-

sioned by flatus, which soon afterwards discharged. Stool was markedly harder and scantier than is natural. The proving was here interrupted.

b. Aug. 19th, took, at 4 p.m., 3 drs. of ϕ; 20th, 4 drs. in the m., 5 in the e.; 21st, 5 drs.; 22nd, 7 drs.; 26th, 10 drs.; 27th, 12 drs.; 31st, 18 drs. Very trifling results—eructations, gripings, oppression in head and feeling of heat in stomach ensued. (Frank remarks that 60 drs. of first dil. affected him more than 18 drs. of mother tincture.)

c. Proved a solution of ʒss of extract in ℥j of water. May 16th, 1845.—Took half a teaspoonful. Occasional eructations. 17th, 8 a.m., half a teaspoonful, fasting. Enlarged pupils, quivering of left upper eyelids, dryness of throat and lips, without notable thirst; drawing and shooting in l. side of chest. In afternoon took a teaspoonful. After 5 m. quivering in l. upper eyelid, often returning; a transient stitch in l. chest; eructations; dryness of throat and lips, spreading through whole mouth. 18th.—Last n. woke at 1 a.m. with distension and griping in abdomen with troublesome nausea; emission of much flatulence brought relief. In m. tongue was coated white, appetite very poor. Quivering in l. upper eyelid, eructation, slight nausea. At 2 p.m. he sat down to his meal without appetite, but this improved as he went on, and after eating tongue cleaned. 11 p.m., quivering and transient slight burning in the outer canthus of l. eye. 19th, m., in outer corner of l. eye he finds several red vessels on sclerotica; quivering; enlarged pupils had become normal. At 1 p.m. a teaspoonful. Emission of much flatus; dryness of mouth and fauces; congestion in head, sensible pulsation therein and some giddiness. The dryness in the fauces increased to a scraping feeling, and caused such dysphagia that only with difficulty and by almost constant taking of fluids could he swallow solid food. Immediately after a meal violent chill, with chattering of teeth; limbs trembled while lying as in the cold stage of an intermittent. He soon fell asleep, and on waking was very hot, had wide pupils; glistening, protruding eyes, as if swimming in tears; and redness of face. At 9 p.m. no appetite, and tongue very white-coated; feeling of fulness in abdomen, together with slight griping and rumbling and desire to emit flatus, which, however, would not pass. 20th.—Stool since taking the drug obviously retarded. While eating white bread and milk pain under hard palate, in middle, which went up into nostrils. Pupils still dilated. 21st, 9.30 a.m., a teaspoonful. Tasteless eructations; flatulence and urging to stool, but with slight result. At 10 a.m. dryness in mouth and throat, dysphagia, water will hardly go down; frequent hawking of phlegm; feeling in eyes as if they protruded from their sockets; heaviness of lids; sight somewhat clouded, slight giddiness with determination of blood to head and tinnitus aurium. 9 p.m., after a meal, a teaspoonful. In bed while reading as usual the letters run together, so that he cannot go on. Sleep was sound. May 22nd, 4.45 a.m., dryness in mouth; he can with difficulty detach some tenacious slime from the fauces by hawking. Copious urination. This m. unusual drowsiness; the letters run together while reading. He sees without glasses, the letters larger, and also more keenly with l. eye than with r., which normally does not obtain 28th. 8 a.m., a teaspoonful, fasting. Return of all

symptoms. At noon slight humming in ears, flickering before eyes, recurrence of twitching of l. upper eyelid; feeling of fulness in abdomen. No appetite or taste; swallowing difficult. 29th.—Very frequent urging to micturate, though he could only pass a few drops at a time. Closing of l. eye. (*Ibid.*, xxxii, p. 298.)

12. H. B—, a girl æt. 23, healthy, took, on 4th June, at 5 p.m., 50 dr. of 1st dil. (1 in 50). In ½ h. she was dizzy—as though she had taken a drop too much, and as if there were a board before her forehead; face red; eyes sparkling and as if swimming in tears, pupils dilated, l. more than r. Flickering before l. eye, making her wipe it often. These symptoms lasted in their full intensity ½ h., then diminished and were gone by 7 p.m. But the headache, which was aggravated by stooping, recurred on moving and stooping for a long time afterwards, occasionally indeed till 11 p.m., though it had at first passed off sooner than the eye affection; and the flickering lasted off and on till 11 p.m. —5th. Complained all day of slight headache (as though a board lay on forehead), which, though it may go off, can always be brought back by movement; dryness of throat seated apparently in the larynx. Had to swallow frequently, speaks rather hoarsely, and coughs occasionally. Till 10 p.m. had frequent, dry cough; scraping in larynx excites the cough; when she swallows she feels a pain there which extends into l. ear.—6th. At noon violent scraping along anterior wall of larynx, causing dry short cough, and hoarse voice. At 4 p.m. is quite hoarse; she complains much of creeping pains which extend to pit of throat and l. ear, also dryness. (Got a grain of hep. sulph.)—7th. Last n. and to-day coughed a great deal. The pain (rawness, scrapiness) extends to r. side of larynx, is aggravated by swallowing and coughing. Nasty taste, tongue white furred, appetite unaffected, complains of cramp of legs. Decided redness of tonsils and neighbouring parts, as also of tip of uvula; but no pain.—8th. On rising weak and weary, she could not make her bed. The scraping feeling gone, but the dry cough frequently recurred though less severely than yesterday. Now she complains of severe pain on pressure behind angle of r. lower jaw. (FRANK, *Ibid.*, p. 323.)

13. Dr. L. B. WELLS.—*a.* Miss F. B—, æt. 22, at 6 and 8 p. m. took 8 drs. of 4th cent. dil. No symptoms. At 9.30 p.m. took 10 drs. In 20 m., distress as if from indigestion. Next d., took 25 drs. at 12.15 p.m. At 1 p.m., distress in stomach. At 3 p.m., heavy, dull, bearing-down pain in abdomen and pelvis; symptom was repeated several times, and was very similar to what patient suffered at every period.

b. Miss C. E. C—, æt. 19, of nervo-bilious temperament. Feb. 24th, 1870, at 4 p.m., took 8 drs. of 4th dil. 4.30, sharp pain shooting from wrist along course of ulna down to elbow-joint; dull aching in muscles of forearm; dull, uneasy sensation all over head. 6.30, feeling of nausea, headache increasing. 8.15, pressing pain in upper part of orbits; slight swelling of lower eyelids. 10.30, took 8 drs.; 10 m. after, a sharp, slight pain in loin, just above ischium; slight nausea. 25th, 9.15 a.m., took 10 drs. Pain in stomach, with slight nausea. 11, small, loose stool, with sharp, stitching pain above umbilicus. 12.15, took 8 drs. In less than an h. pain at sternal

extremity of fifth rib. 4.15, darting pain under l. parietal bone. 5.20, drawing pain in arm, near insertion of deltoid muscle, relieved by pressure. Parietal pain extends to temples. 6.10, took 15 drs., and in 40 m. had drawing pain in hollow of r. foot. Headache involved r. temple. 7, cutting pain in r. loin, and in lower extremity of sternum. Slight, cutting pain behind ears. 9.30, sensation as if hair on top of head were being pulled. Slight earache. 10, nausea, with sensation of fulness in throat; gradually changes to burning. 26th, 7 a.m., took 10 drs., and at 11 there was darting pain in and near the orbit of l. eye and near vertebral extremity of eighth rib. Sharp pain at base of first metatarsal bone of r. foot. 11.30, sharp pain over stomach, and between last cervical and first dorsal vertebræ. 12, dizziness. 1., sharp pain in splenic region. 4, sharp, cramping pain just below extremity of sternum, gradually extending to pit of stomach, up the sternum, and over cardiac region. 9, cramp, eextnding from tonsil to top of pharynx. Cramps at base of tongue. 27th, 11.30, sharp pricking pain in abdomen. 3, stitches in chest and just below r. axilla; slight headache in temple. 28th.—Slight lateral headache. Mar. 1st, 5.45 p.m., took 8 drs.; in a few m. felt slight warmth along back of r. forearm, as of approaching numbness, and slight paralytic feeling along anterior tibial nerves. 2nd, 11.30 a.m., took 8 drs.; no symptoms. 3rd, 7 a.m., took 12 drs.; sharp, cutting pain in side of head, from frontal to occipital region, becoming general, and at last settling in l. parietal bone; drawing, cutting pain behind r. shoulder-blade. 4th.—Headache all day. 5th.—Sharp, tearing pain under and in r. armpit. These peculiar cutting pains commencing in wrist and extending (shooting) up to elbow, and sometimes above that point, continued several weeks, and always from extremity to centre. The prover had never experienced these pains before the experiment. (*Trans. of N. Y. State Hom. Med. Soc.*, x, 129.)

14. H. M. Gray.—*a*. I had taken an unwarrantably large dose of the extract, to quiet the pain of a severe neuralgic faceache; not finding any relief, I repeated it in the course of 10 or 15 m., swallowing in all some 8 or 10 grains. About an h. after the last dose had been taken, the medicine began to induce its specific effects in the following order: First, vertigo, increasing to such an extent as to render it impossible to walk without staggering. The dizziness, which was at first transient, soon became continued and very severe. Now came on the affection of the eyesight, every object growing dim, as though a cloud were between the eye and it. Sometimes objects appeared double, and with an undulating motion passed before the eye. I observed that by a strong effort of will, a concentration of the nervous power, this paralysis of the retina might for a moment be combated, but only to return with greater severity when the mental effort had been succeeded by its corresponding relaxation. The pupils were immoveably dilated; the eyes prominent, dry, and exceedingly brilliant. The conjunctival vessels were fully injected. There was total absence of lachrymation, and motion was attended with a sense of dryness and stiffness. The face was red and turgid, and the temperature and colour of the surface considerably augmented. Pulse full, from 120 to 130. The feeling in the

head was that of violent congestion, a full, tense, throbbing state of the cerebral blood-vessels, identically the same sensation as would be produced by a ligature thrown round the neck, and impeding the return of the venous circulation. The peculiar state of the throat next excited attention. The tongue, mouth, and fauces were devoid of moisture, as if they had been composed of burnt shoe-leather. The secretions of the glands of the mouth, and the saliva, were entirely suspended. A draught of water, instead of giving relief, seemed only to increase the unctuous, clammy state of the mucous membrane. About the bag of the pharynx this sensation was most distressing. It induced a constant attempt at deglutition, and finally excited suffocation, spasms of the fauces and glottis, renewed at every attempt to swallow. A little saliva, white and round like a ball of cotton, would now and then be evacuated.

b. The slight delirium that followed the action of the narcotic was of a strange yet not unpleasant kind. I wished to be in constant motion, and it certainly afforded me an infinite degree of satisfaction to be able to walk up and down. The intellectual operations at times were very vivid. Thoughts came and went, and ludicrous and fantastic spectacles were always uppermost in my mind. I was conscious that my language and gesticulations were extravagant, yet I had neither power nor will to do otherwise than I did; and notwithstanding my bodily malaise, my mind was in a state of delightful exhilaration.

(The treatment was very simple; a cold douche to the head and an emetic soon destroyed the dominion of the poison. I found some difficulty in provoking the operation of the emetic owing to the insensible condition of the stomach. After vomiting, the disposition to sleep became very urgent. Strong coffee, however, counteracted this tendency.)

c. The other fact relative to the effects of B. is worthy of note, viz. its tremendous diuretic power. I have observed that it does not seem to reach the kidneys until it has been some time in the stomach, and has exerted its specific influence on the brain. But its power over the secretion of urine seems to be very great. I am confident I passed in the course of an hour three pints of urine, accompanied with a slight strangury at the neck of the bladder. (*N. York Journ. of Med.*, 1851.)

15. One grain and a half of what I believe to be a very good extract of B. was taken on going to bed (11 p.m.). At about 4 a.m. I woke in a state of slight but decided delirium. My judgment, I think, was sound, when I chose to exert it, but nothing could rid my eyes of a legion of most disgusting spectra. I am not very partial to any part of the insect creation, but cockroaches are my special horror, and spectral cockroaches were swarming all over the room. Every object in the room, both real and spectral, had a double, or, at least, a dim outline, owing to the extreme dilatation of the pupils. My hands also shook a little. This state lasted for about two hours, and then passed off, leaving me nothing to complain of but a dry sort of feeling in the throat. (Anstie, *Stimulants and Narcotics*, p. 198.)

16. The operation of ♏xxx of a Succus Belladonnæ, prepared by Messrs. T. Bell and Co., was noted in six adults, male and female.

Bell. action was fully developed in all within an hour. The pulse in one was accelerated only ten beats; in another twenty beats; in a third 26; in ten others 40 beats; and in the sixth, a youth of twenty, the cardiac systoles were more than doubled, the pulse rising from 60 to 140 beats.

Associated with the acceleration of the pulse, the other effects of B. (see Atropinum, I, 5) were well developed, but in none of the patients was there any observable increase in the respiratory movements. The individual in whom the acceleration of the pulse amounted to 80 beats did not, throughout the 45 m. during which the maximum acceleration continued, outwardly manifest or express the slightest excitement. The respirations never exceeded 18, and at the time when the cardiac excitement first reached its acme, and afterwards, the inspirations numbered 15 or 16, and were natural and easy. (HARLEY, *Old Vegetable Neurotics*, p. 207.)

17. 9 a.m., health good, pulse 65, soft; took 10 drs. 2x in water soon sharp pains in r. malar bone, extending to eye and temple. 9.10, pulsating in arms, face hot but not flushed. 9.25, pulsating headache, eructations. 9.30, neuralgic pains darting in back and thighs; pricking in throat when swallowing. 9.45, constant desire to swallow, mouth and throat dry; exercise aggravates headache; pulse 65, fuller and more round. 10, desire to sneeze; neuralgic pains in arms and neck. 10.15, after lemonade sharp pain in stomach and bowels for short time, followed by toothache on l. upper molar. 10.40, very sleepy and languid; pulse 65. 11.30, violent palpitation of heart, and pulsating all over body, caused by slight exercise; headache returns; sneezing. 12, no appetite; considerable thirst; sight of food nauseates. 2 p.m., mind unusually bright, study easy; slight photophobia and sneezing when in sunlight. 4.30, much itching in various parts, rubbing causes erythema that remains; pulse 84; feels heated; head aches. 5, called to urinate, scant and tardy, followed by scant stool. 6.30, pulse 96 before eating; head hot, feet cold. 8, congested heavy feeling in abdomen and pelvis; sexual excitement with desire (no exciting cause present). 9, called to stool, much straining, only flatus. 9.20, overcome with sleep; waked often during night by involuntary twitchings here and there. 2nd d., waked with pallor, headache, and debility; no appetite for breakfast; bowels sore and distended; early and copious stool. Occasional palpitation of heart during d., copious urine every 2 h. on the average all d. (A. W. WOODWARD, M.D., *communicated.*)

18. J. HUKENBECK took on 28th March at 8 and 10 a.m., and at 1 and 4 p.m. ¼ gr., and at 8 p.m. ½ gr. of ext. bell. made into pills with ext. tarax. and pulv. rad. althææ. In afternoon the sight became so bad he could not see the largest letters; he also sometimes saw double. No other symptoms.—29th, 7 a.m., ½ gr. At 9 a.m. pupils greatly enlarged, sight quite extinct, iris insensible to light. At 4 p.m. sight somewhat restored; took ¼ gr.—30th. 3 doses of ¼ gr. The sight had returned by the m. and iris moveable; after the 1st dose became blind and pupil immoveable or dilated; thirst, dryness in mouth, and spasm of throat. No stool.—31st, m., twice ¼ gr., afternoon and e., ¼ gr. Pupils moveable m., became dilated and remained so all day after 1st dose.

Sight obscured, but not quite blind. Dryness of mouth, thirst, and constrictive feeling in throat all d.; 2 stools.—1st April. ¼ gr. 4 times a d.; sight weak, dryness of mouth; thirst, 2 stools. (BÖCKER, *Beitr.* ii, 257).

19. Dr. BÖCKER took on 19th Sept. at 4 p.m. ⅛ gr. extr. bell. No effect.—20th. ⅛ gr. at 6.40, 9.15 a.m., 2.47, 11, 11.15 p.m. At 10.30 a.m. slight pressive pain behind and above eyebrows, lasting till 11.45, a.m. when had flow of saliva into mouth, mucus in fauces hawked up, trachea and bronchial tubes covered with mucus, removed by hawking. After 3 p.m. eyes weak, objects seen as if through glass, not obscured. Pupils sensitive. At 6 p.m. sight better, still mucus in throat. At 4 p.m. the headache returned slightly, but went off after supper.—21st, 7 a.m., ¼ gr. On rising r. nostril somewhat stopped. 9.35, sneezing, followed by slight coryza. Stool rather loose, of a greenish colour. This green colour of fæces observed during whole proving and for some days after; e., eyes rather tired and weak.—22nd, 6.50 ⅛ gr., 9.5 ¼ gr., 10.30 a.m. ⅛ gr., 3.15 ¼ gr., 5.5 p.m. ⅛ gr. At 10 a.m. some running from l. nostril, sneezing, mucus in nose, trachea, and fauces, occasionally expectorated. This mucous secretion soon stopped, and dried to crusts in nostrils. Soft stool of greenish colour, as also on 23rd and 24th, on each day 2 loose green stools. The m. stool on the 25th was still green, but one in e. was quite normal.—26th. 6.55 and 9.6 ¼ gr., 11 a.m. ⅛ gr., 3.25 ¼, 4.45 and 10.5 p.m. ⅛ gr. At 9.10 a.m. normal stool preceded by flatus. After stool, transient tensive feeling below navel. 9.35 a.m., slight burning feeling in upper part of œsophagus, must swallow frequently and with difficulty on account of spasmodic contraction of œsophagus. The feeling lasted a long time, going off and returning. At 11 a.m. the constrictive sensation was worse, but never very bad. At 11.45 a.m. hawked up mucus several times and the constrictive feeling went off. Noon, hawking mucus. 5.30 p.m., dim before eyes lasting till e. 7.30, after supper nausea and inclination to vomit without actually vomiting, this ameliorated in open air after lasting ¼ h. 11 p.m., normal stool.—27th, 6.45, 9.5 a.m., and 3.2 p.m., ¼ gr. Stool of green fæces enveloped in reddish mucus. M., hawked up some mucus and had pressive pain about tonsils. 4.30 and 10.15 p.m., soft green stool. Afternoon, much fatigued by a longish walk, perhaps owing to having eaten little. All d. moderate appetite, the food had not such an agreeable taste and did not seem to digest as well as usual; feeling of fulness in abdomen, especially just before a stool. Occasionally expectorated mucus, and felt as though catarrh was developing in throat. The soft palate, tonsils, and back of pharynx were swollen and inflamed; as this was the second time these symptoms had occurred after taking Bell., he was certain they were an effect of the drug. 7 p.m., flashes like lightning before r. eye.—28th. Swallowing caused aching pain in fauces, the parts were still red and inflamed. Stool soft and green. On shutting eyes dull flashes of light.—29th. Pupils rather dilated, m. and less sensitive to light. 10.30 a.m. when walking in open air black spots and stripes before eyes, rapidly appearing and disappearing. Throat still red and inflamed. 10 p.m., a scanty, normal, but rather greenish stool, felt very

unwell and uncomfortable.—30th. 2 stools, less green. Throat still red, but not so much so.—1st Oct., two, 2nd, three greenish stools. Throat all right. Next day one normal stool; felt very comfortable and well. (*Ibid.*)

II. *Poisonings.*—1. The subject of the poisoning was a child between two and three years of age, and the amount swallowed from 8 to 12 grs. of the extract. The following symptoms presented themselves upon seeing the case some 30 to 50 m. after the drug had been taken into the stomach:

a. "The expression of the countenance was that of a person in terror, pupils widely dilated and immoveable, the tunica conjunctiva highly injected, and the whole eye prominent and preternaturally brilliant. The face, upper extremities, and trunk of the body exhibited a diffuse scarlet efflorescence, studded with innumerable papillæ, very closely resembling the rash of scarlatina; the eruption terminated abruptly at the wrists and flexure of the thighs, the rest of the body retaining its natural colour. Skin hot and dry, and pulse much increased in force and frequency.

b. "The patient's manner was apoplectic; respirations anxious, and attended with the brazen, stridulous sound of croup. A constant and unsuccessful attempt at deglutition was observable, and at every renewal of the attempt the muscles of the thorax and pharynx would be thrown into violent spasmodic action. Severe engorgement of the venous trunks was also present. The partial coma alternated with paroxysms of uncontrollable tendency to motion and rapid automatic movement, attended with convulsive laughter. No well-marked convulsions made their appearance, although, during the brief periods of sleep into which the patient would fall, a slight subsultus of the muscles of the face and extremities was noted."

c. Remedial measures, including free emesis, were now adopted, and the child soon recovered; during convalescence "the diuretic effect of the drug began to be experienced, the patient evacuating an enormous quantity of limpid urine." (GRAY, *N. Y. Journ. of Med.*, 1851.)

2. *a.* A porter of the Ophthalmic Hospital in Moorfields took ℥ss of liq. belladonnæ in mistake for the fluid extract of sarsaparilla. He did not immediately discover his error, but in 5 min. or thereabouts after it had been committed he was rendered sensible of his mistake by the unexpected occurrence of a sensation of heat and dryness in the throat, succeeded very soon by vertigo and slight aching pains in the limbs, but no headache. Upon the appearance of these symptoms, he immediately ran across the street, a distance of about 100 yards, to the residence of his usual medical adviser, for assistance, and was by that gentleman directed to return to the hospital and drink warm water until the stomach-pump could be got ready. The man did as he was told, and vomited on his return before the pump could be applied; but whilst in the act of drinking he became powerless, and in less than ¼ h. after the accident delirious and insensible. He struggled violently in his unconscious state, and the combined strength of several men was required to hold him steady during the operation of pumping out the contents of the stomach.

b. The stage of delirious excitement was brief; and whilst in a comatose state the patient was sent to St. Thomas's Hospital, and placed under my care. When the patient was first seen by me at 10.30 a.m. he was nearly unconscious of surrounding objects; he was lying supine, and all his limbs were equally powerless. There was no hemiplegia; his face was full and flushed; the head and general surface warm; the pupils widely dilated, scarcely any iris could be seen, and the retina was quite insensible to the stimulus of strong daylight. The palpebræ of the l. eye were puffy, and redder than those parts on r. side; and the upper l. lid was prolapsed, as in ptosis. The breathing was stertorous, and the respiratory sounds, hastily examined over the anterior parts of the chest, were modified by râles. The action of the heart was feeble, and the pulsations of the radial artery were 116 in the m., regular, and weak. The tongue could not be seen. The abdomen was rather contracted, and no distension indicating an accumulation of urine existed. The sensibility of the pharynx was so much impaired, and deglutition so imperfectly performed, that, on introducing a warm infusion of coffee into the patient's mouth, the liquid collected about the larynx, and his features became alarmingly turgid in consequence of impeded respiration.

c. Under the influence of treatment an amendment, indicated by a diminution of heat and fulness of face, and by returning consciousness, took place in the course of a few h. after the patient's admission; and about 3 p.m. he made an attempt to articulate the monosyllables "yes" and "no" when roused by questions. The amendment, however, was only temporary; for, in the e., violent delirium succeeded the stupor, and recurred a second time. The patient continued very unmanageable during the n., and could only be restrained with safety to himself and the neighbouring patients by means of a strait waistcoat. This state of excitement was protracted till about 3 next m., when he again became calm, and a decided abatement of all the urgent symptoms was noticed at 8 a.m.

d. At 1 p.m. he had regained the power of speech and deglutition; and although a peculiar wild expression of countenance remained, with confusion of ideas, he was sensible enough to thank his medical attendants for the aid they had afforded him. The tongue could now be protruded; the pulse had subsided from 116 to 68, and did not subsequently undergo any material variation. The sight of the r. eye had become rather clearer, but that of the l. eye more impaired; the upper lid more tumefied and prolapsed; the conjunctiva more vascular, and raised above the margin of the transparent cornea, which, in a few days, became opaque; and a small quantity of a puriform fluid had accumulated in the anterior chamber of the eye. The sight of the l. eye was perfectly natural previous to the accident; and as no mechanical injury has been since done to it, its inflammatory state may be fairly attributed to the virulence of the B.

e. All anxiety for the immediate safety of the patient ceased within 30 h. after his admission; but the abnormal condition of the nervous system prevailed several days, and notwithstanding he conversed rationally on the second d., he had no recollection of the events which

occurred in St. Thomas's Hospital until near 60 h. from the commencement of his first delirium, or the third d. of the accident. After recovering perfect consciousness, a remarkable numbness, extending over all parts of the trunk and extremities, attracted attention, and persisted for several d. No pain could be excited, while this condition continued, by forcibly pinching the skin of the forehead or of other parts; and although an unusual sensation was perceived by the patient at the moment, he could not, with his eyes averted from the operation, point out the precise spot subjected to compression. Anæsthesia coexisted with consciousness, resembling the state often recognised during recovery from the effects of chloroform. The specific sensibility of the r. retina was not entirely restored until after common sensation had returned to the general surface; and the sight of the inflamed eye continued dim, from the events of the secondary affection, until a later period.

f. The mental delusions during the delirium were for the most part, though not altogether, of an agreeable kind; and the prevalent fancy in the patient's mind was that he had become suddenly rich and possessed of a splendid mansion. (BURTON, *Lond. Med. Gazette*, 1848, p. 1024.)

3. *a.* Miss G., æt. 34, of slight figure, fair complexion, nervous temperament, swallowed by accident ʒj of extract in ℥iss of soap liniment. At first she only complained of "a sensation of madness in her brain," but in less than an h. lost the power of speaking and swallowing quite suddenly, and fell into a comatose state. Mr. E. found her with head bent forward on chest, speechless, eyes closed, breathing heavy and stertorous, pupils widely dilated, hands and feet cold, pulse scarcely perceptible, jaws firmly fixed; there was a constant disposition to raise the hands to the face. She appeared conscious when roused and addressed, but could not answer; nor could she swallow when liquids were put into the mouth. After emptying the stomach with the tube, and introducing coffee and ammonia, there was some reaction.

b. 12 m., there seemed to be a gradual improvement in her breathing, circulation, and general appearance; there was a slight twitching of the muscles of the r. side of the face; not able to swallow, but we fancied she, in answer to a question put to her, said "yes." 5 p.m., symptoms the same; no evacuation from bladder or bowels; pupils widely dilated and immoveable; has slept a good deal; skin warm; pulse 112, feeble; still unable to speak or swallow. 9 p.m., countenance more natural. There was constant nictitation, and picking at the sheets; if touched by any person she jumped as if in great alarm. This I observed to occur whenever her hair was removed from her face, or when I felt her pulse. When thoroughly roused she answered in monosyllables, and apparently attempted to form connected expressions, but they were unintelligible; pupils still greatly dilated, nor did they contract when a lighted candle was placed before the eyes; pulse 120; no action from bladder or bowels. On asking her if her throat was sore she replied, "dry;" on asking her if she could suck an orange, she replied, "yes." I therefore had some orange-juice squeezed into a glass, and, by means of a teaspoon, got her to swallow perhaps

half an ounce; but this was accomplished with great difficulty. Ordered an injection of a pint of gruel with half an ounce of oil of turpentine and an ounce of castor-oil to be administered directly, and, when able to swallow, the following mixture:—Spirit of nitric ether, ʒiij; compound tincture of cardamoms, ʒij; camphor mixture, ℥vss. To take an ounce every 3 h.

c. January 9th, 11 a.m. Has passed a restless night, sleep being much disturbed by frightful dreams; complains of intense pain in the head, and says that it feels enormously large, as also does her throat; is much annoyed by a constant sensation of trembling in all the muscles of the body; bowels were moved after the injection, and some urine passed at the same time, none since; great intolerance of light and noise; tongue rather dark, but moist; skin natural; complains of thirst; pulse 88; pupils as dilated as ever. She says she can see me for a moment only, and then my face becomes horribly distorted. The power of speech seemed to return about 12 or 1, at which time she was very delirious, and would persist that there were very horrid monsters all over the room staring at her. Ordered 8 leeches to the temples; effervescent mixture every three h., and 2 grs. of calomel, with 7 of extract of colocynth, to be taken directly. She says she remembers my coming to her yesterday m., but was unconscious of everything afterwards until the e.

d. Jan. 10th. Better; head much relieved by the leeches; passed a restless night, her sleep, she says, being disturbed by "miserable phantoms;" bowels have been relieved two or three times, and urine has been excreted copiously; skin moist; pulse 100; slight thirst; pupils still unaffected by light; complains of the trembling of her muscles, but has lost the sensation of her head and throat being enlarged.

e. Jan. 11th. Improved in every respect; pupils not so widely dilated, are now slightly affected by light. From the above date gradual amendment took place, and the power of vision slowly returned. It was, however, some days before she was able to walk, even with the assistance of a person on each side of her. This inability to walk did not arise from weakness, but she appeared to have lost all power of controlling the action of the legs. (EDWARDS, *Lancet*, 1851, i, 568.)

4. A mother, with her four children and a maid-servant, ate one e. of the ripe berries of B.; the mother and maid had each eaten about six bunches. In the course of a few hours the symptoms of poisoning manifested themselves in all of them; these were nausea, double vision, sense of constriction of the throat, giddiness, and sleepiness. On the following d., 15 h. after the poison had been taken, Dr. T. saw the patients. The operation of the poison displayed itself in four degrees.

a. The first and slightest was in the maid-servant, who produced vomiting in herself by drinking warm water and tickling her throat. She complained only of headache and weariness. The pupils were enlarged, the face red, and the pulse somethat quickened.

b. The second degree was observed in two of the girls, one of whom was 4, the other 8 years old. It displayed itself in a tottering gait,

incoherent talk, protruding of eyes, dilated pupils, staring look, very quick pulse, and increased temperature of the skin.

c. The third degree was exhibited by the mother. She fell into a delirious state in the morning, attempted to bite and strike her attendant, broke into fits of laughter, and gnashed her teeth. The head was hot, the face red, the look wild and fierce, the tongue dry, the abdomen swollen, the pulse small and frequent.

d. The fourth degree showed itself in the two boys, the one of whom was 2½, the other 6 years old. They lay in a soporose condition, with violent convulsions of the extremities; the head was very hot, the face red, the eyes protruding. They were also affected with a croupy cough.

The cases were all treated with emetics, purgatives, and stimulants; and the patients recovered in the course of twenty four h. (TESCHENMACHER, *Casper's Wochenschrift*, 1843, p. 515.)

5. A child of 4, of feeble constitution, but otherwise well, ate, at 11 a.m., a quantity of the berries of B. The following symptoms set in:—want of appetite, nausea, vomiting, symptoms of intoxication and slight delirium, inextinguishable thirst; 6 h. afterwards, tumefaction and redness of face and lips, raising of eyelids, dilatation of pupils, insensibility of eyes to light, convulsive closing of jaws and contraction of muscles of face and extremities, very feeble pulse and irregular respiration. Next d. increase of convulsive movements with redness of the face and profuse perspiration; pupils remained dilated; there was also rigidity down spine, tumefaction of abdomen, which was very tender to touch, constipation, and weak pulse. On 3rd d., in m., child was better, but at noon delirium returned with swelling of the abdomen and aphthæ in mouth; in e. there was fever with agitation; he complained of great pain in his teeth. From the next d. all symptoms speedily disappeared. (ORFILA, *Toxicologie*, 4th ed., ii, 392.)

6. A little girl of 3, enjoying excellent health, spending the afternoon at another house, returned home in the e. refusing all food, anxiously seeking drink, perpetually trying to sleep without success. In the middle of the (sleepless) n., she vomited some of the food which she had taken during the day. Being then attacked by excessive convulsions, simulating true epilepsy, she began to rave. Being called to this unfortunate child in the early m. I found her in the following astonishing condition:—her respiration was violent, short, hurried and anxious; the pulse was very quick and feeble, scarcely to be felt; a burning thirst, with great heat in all parts, tormented the patient, who now craved for drink and now repelled it when offered. At this time she neither vomited, nor did the bowels act. The moist hair stood on end; the countenance was red and swollen (the rest of the surface being pale), the eyes were sparkling, rolling about, and projecting. Her agitated little frame perspired, yet not so as to be profusely sweating. There was frequent and copious emission of thin, pale, watery urine. She was talkative, and laughed loudly; but the mind was disordered, so that speech did not correspond to thought, nor thought to sense, nor sense to the objects present. Her tender little frame was racked with horrible spasms and frequent convulsions, the flexor muscles being

chiefly involved. In the intervals between the spasms she uttered cries audible far and wide, evidencing the pain she felt. [It was found that she had eaten freely of the berries.] (GRIMM., *Nov. Act. Acad. Nat. Cur.*, vol. ii.)

7. On July 1st, 1798, at 4 p.m., I was desired by the master-dyer, Baptiste Schwerber, of Allensbach, to visit his little daughter of 6 years old, who was seized with spasms. Ere I could reach the house, a barber-surgeon, who lived near, gave her a dose of Hoffmann's anodyne, after which the patient grew worse till 8 o'clock, at which time I saw her. I found this naturally healthy girl tossing about in her bed in a perfect rage, with blood-red countenance, and full pulse, and altogether without reason. The whole body was swollen and red; she spoke constantly and rapidly, talking nonsense; tried to tear her night-dress and her clothes; in short, she resembled one mad to the utmost degree. I immediately suspected a poisoning; but the narrative of the parents gave me little enlightenment thereupon. They said that up to noon the little maiden had been quite lively, and bounding about, but at dinner-time she was already strange, and did foolish things; in the afternoon she tore her bonnet, pulled stones out of the ground and threw them at the passers-by, sprang into the water, and so at last reached the frightful height of frenzy above described. The widely-dilated pupils, however, satisfied me that I had to deal with a case of poisoning by B. [The rest of the narrative tells how the suspicion was confirmed, and the poison antidoted.] (SAUTER, *Hufeland's Journal*, vol. xi.)

8. *a.* J. G—, æt. 75, of spare habit, took by mistake, at 6 p.m., 5 or 6 grs. of extract given him for external application. In a short time effects became manifest, and by 7 he had lost power of articulation, and presented general appearance of a person seized with slight paralysis. He was quite unable to stand or walk, and his limbs were in a state of tremor and agitation. He became cold, and nearly approaching a state of insensibility; the eyes had a wild, vacant appearance; the respiration was laborious and occasionally stertorous, and he moved the body incessantly backward and forward, as if his inward suffering (not otherwise expressed) was very great. At 10 the temperature of the body had increased, face swollen, mouth and throat extremely dry, and insensibility more complete. Castor-oil had been given, but was rejected. One of the attendants stated that nausea prevailed at various times. No active delirium was manifested, but from the general appearance of the eye and features, no doubt that peculiar derangement existed, subdued partially by the pressure on the cerebral organ, so as more nearly to approach the character of apoplexy.

b. At 6 the following m. he appeared considerably exhausted, but had still sufficient power to take some wine and water, and for the first time indistinctly uttered a few words. His mouth and fauces at this time (to use the words of an attendant) were as dry as a chip. His face was so much swollen and red as quite to change his natural appearance. His daughter remarked that the wrinkles of old age had disappeared and he appeared much fatter than usual. Between 9 and 10 he appeared quite exhausted, and died at 11, being 17 h. after swallowing extract.

c. The *P. M.* examination showed great congestion of brain, parti-

cularly at base, and of medulla oblongata, together with considerable serous effusion. There was also congestion of lungs, and dark discoloration of part of greater curvature of stomach. (JACKSON, *Med. Times*, Sept. 16, 1848.)

9. M. N—, æt. 46, took by mistake 44 grs. of powdered plant. About 1 h. afterwards he was attacked with violent headache, seated chiefly about orbital fossa, and soon followed by excessive redness of eyes and face, which gradually extended over whole surface of body, so that it presented a uniformly red colour, exactly resembling that observed in scarlatina; moreover, his throat was of a deep red colour, and the seat of an acute sensation of heat, which appeared to extend throughout the alimentary canal. There was great irritation of (apparently) the neck of the bladder; the patient, in the midst of a loquacious delirium, which turned principally on the pain which he experienced in this part, was continually making efforts to evacuate his urine, which was very red and bloody, and came away *guttatim*. After antiphlogistic and emollient measures he was better, save for the vesical irritation, this yielding after 20 leeches had been applied to hypogastrium. He slept well, and next m. had only some malaise, which soon disappeared. (JOLLY, *Nouv. Bibl. Méd.*, 1828.)

10. Mr. T—, having suffered for some time from pain in back, palpitation, and dyspeptic symptoms, had a belladonna plaster applied to back. Ten d. afterwards he removed it, and being unaware that on its site some pustules and minute ulcers had appeared, applied a fresh one. Leaving home for business soon after (10.30 a.m.), between 11 and 12 he found tongue and throat extremely dry, and tongue covered with a white, clammy fur which he could pull off in strings. Dryness caused great distress, and impeded articulation. At same time he had extreme desire to micturate, but could only pass with much effort a few drops of colourless fluid; this he continued to do as often as possible until he lost consciousness. Sense of dryness increased, and he began to feel a little confused, but transacted business correctly. Between 2 and 3 it was observed that there was something strange in his speech and manner; drinking some water aggravated dryness. He drove himself home, which he reached about 3. Mind was by this time much confused, and soon after he had, 5 or 6 times in quick succession, convulsive catchings of extremities, face and trunk,—such, he says, as animals have when bitten by venomous serpents.* His mind then began to ramble and advice was sought. Patient, seen at 6, was found standing by bed, supported by two men. He seemed to have very little power of, or control over, lower extremities, and would have fallen if unsupported. He dragged legs on being led about. He was restless in the extreme, and would not lie down for an instant; hands were in constant motion; he seemed as if he were busy moving some light objects; occasionally he made ascending movements with feet. He moved his mouth incessantly, as if talking, but sounds emitted were inarticulate and unintelligible. He paid no attention to those about him, in fact, seemed unconscious of their presence, only now and then, when addressed in a loud voice, he stared at the speaker for an instant, like

* Mr. T— was employed in the Zoological Gardens.

one aroused from a sound sleep. Once he laughed when bid to put out his tongue, and rapidly protruded and withdrew it. Pupils were very large, and reacted sluggishly to light, surface was warm, face a little flushed, but no throbbing of vessels was perceptible. Pulse was 80—90, regular.

Removal of plaster, and administration of amm. carb., produced speedy improvement, and consciousness returned before 11. He had no sleep that n. or the following, and memory continued very defective for 2 or 3 d. (JENNER, *Med. Times and Gaz.*, Nov. 22, 1856.)

11. GREDING treated 23 epileptics with inspissated juice and powdered leaves, in increasing doses. He gives following summary of effects observed :—

"*a.* Beyond quiet and refreshing sleep, which some even in the first days, but still more in the further course of the treatment, enjoyed, no change in this respect was noticed, and although a few from its continued use had their sleep once and again somewhat prolonged, yet I saw no one, however largely the B. had been taken, somnolent or torpid.

"*b.* So also none, from the commencement of their use of B., complained of increased heat of body, unless perhaps it were a man who, having sweated freely on the 2nd n., on the 3rd cried out in his sleep that his house was on fire, which might imply that he was heated. Nor did I, in my daily forenoon visits, find the pulse weak and rapid, as others have observed, save in those who kept their bed from depression of mind; and even in these later on in the treatment it became, as in the rest, natural, full, quiet and strong.

"*c.* Repeated and materially increased doses, however, caused in many a more frequent and profuse flow of urine, and also an outburst more or less free of perspiration, which last was sometimes of long continuance. In one case it was limited to the chest, in another to the forehead.

"*d.* Upon these secretory actions there followed, if it did not precede them, a certain notable laxity of the bowels, often continuing throughout the treatment, and even a slight and transient diarrhœa, which in one case alternated for some time with heat of the head. Two patients only had for some days a noteworthy constipation, the rest enjoying daily motions.

"*e.* The appetite varied; with some it was for a short time diminished or depraved, and with a few was extinguished, but with others it was notably increased.

"*f.* Two only complained of bitterness of mouth, but several of nausea, eructation, and tendency to vomit; some had spontaneous, even pituitous, vomiting, the ejecta in one case having a green colour.

"*g.* Not a few felt some amount of belly-ache; one complained of pressure at the stomach, as if a stone were there, another of a bruised pain in the abdomen.

"*h.* Several had slight dryness of the mouth, others thirst, which in two instances was somewhat intense. One only complained of viscid saliva forming largely, and adhering to the palate and fauces, but three others spoke of a certain degree of salivation. Two for a short tim

had difficulty of deglutition, one hoarseness, and one pain in the throat, afterwards shifting to the abdomen and going off in a mild diarrhœa.

"*i.* In few—4 at the most—was any headache excited. Several, however, experienced slight and transient vertigo. Some felt cloudiness of the head, one woman to such a degree that she seemed intoxicated. The heaviness of hearing in one youth, and the noises in the ears—with rush of air from the left—experienced by one of the girls, are very dubious effects of the drug.

"*j.* A larger number had the eyes affected. One had heat in them, another pressure, and feeling as if grains of sand were there; two spoke of pain, and two showed some redness. Still more complained, especially in the morning, of decided dulness of the eyes, with which went marked dilatation of the pupils of more or less long duration; while one had actual blindness lasting for 3 weeks. No permanent harm, however, resulted to the sight of any.

"*k.* Nearly all, in the early stage of the operation of B., had pale faces. Some even spoke of a sense of chill and shuddering. One complained of coldness in the nose only; another in the knees, while his forehead was hot; and another felt cold to the touch all over.

"*l.* A few spoke of flying heats, but two only of fever; and this was followed, with one by facial erysipelas, and with the other by gumboil. As several other persons in the hospital and neighbourhood had similar affections at this time, though not taking B., we cannot ascribe them to the drug.

"*m.* Three only were subject to redness of face, and this only after the B. had been continued some time.

"*n.* No anxiety was at first caused by B., but later, four patients experienced it in the præcordia to such an extent that they tore their bodies, seeking in this way to put an end to themselves. The respiration in the other cases was quite free.

"*o.* The catamenia seemed little affected by the use of this drug. Some of the women who took it enjoyed regular periods throughout the treatment. In some, indeed, there was delay, but fuller flow afterwards; with 3 the period anticipated, and in 2 of these cases was freer also, while in 2 there was also epistaxis at the same time.

"*p.* Certain rheumatic pains seemed ascribable to the B., in 2 of the side, in 2 of the chest, in 3 of the arms and scapulæ, in 6 of the loins and hips.

"*q.* I leave others to judge if the eruption of small, smooth, dull red spots, irregular and angular in shape, and not raised above the cuticle, in Case 19, appearing after a sudden rigor; or the pustule of Case 15, appearing near the nail of the index finger and emitting much acrid serum, can fairly be traced to the drug.

"*r.* I saw no reason to believe that B. induces an inflammatory condition in the humours. In cases where, from some cause connected with their malady, I had to draw blood, I found the fluid free from the signs of this state; and an accidental wound in one showed no tendency to become inflamed.

"*s.* The spasmodic and convulsive accidents which occurred are of course not due to the drug, as they would be observed in any case of

epilepsy which was watched sufficiently long."* (LUDWIG's *Advers. Med. Pract.*, i, 632.)

III. *Experiments on animals.*—1. *a.* M. Flourens found that birds fed by him with B. became blind. On examining them after death he observed that the cranium was stained red opposite the corpora quadrigemina, from which, and from its effect on the sight, he concluded that these nervous ganglia were chiefly acted on by the poison.

b. Herbivorous animals do not seem to be affected by devouring any part of the plant, if we may judge from experiments performed upon the horse, the ass, and the rabbit.

c. The berries of B. administered by Orfila to dogs produced no result; but these animals were readily poisoned by the extract taken into the stomach or injected into the veins, and exhibited, along with dilated pupils, the symptoms belonging to narcotic poisoning in quadrupeds. (STILLÉ, *sub voce.*)

2. *a.* To a mare was given ℥j of powdered B. root with a pint of water, at 3.30 p.m., pulse being 36 (normal). At 4.45, tongue was dry, pulse had risen to 44. At 4.50, tongue was gradually becoming moister, pulse 50. At 5.50, tongue moist, and pulse had fallen to 40. From this time effects of drug gradually passed off.

b. To a colt ℥j of powdered leaves was given in same way at 4 p.m. At 5.20 pulse was 56, at 6.25 50, whence it gradually fell to normal rate. No other effects were perceptible. (BURNESS and MAVOR, *Specific Action of Drugs*, p. 64.)

Atropinum. An alkaloid obtained from Belladonna, $C_{17}H_{23}No_3$.

I. *Provings.*—1. *a.* W. S. MOFFAT. July 3, 1867, I commenced experimenting with A. Am 21 years of age; nervous temperament; good constitution; somewhat subject to gastric and bilious derangement. Do not habitually use tea, coffee, or alcoholic stimulants; labour mental; take meals at regular hours, 3 times a d.; also free exercise in the open air. Hours of sleep, from 11 p.m. to 7 a.m. At 1 p.m. took 5 gr. 3rd dec. trit. of A.; no symptoms. At 3 same dose; no symptoms. July 4, 3 p.m., took 5 gr. 2nd trit.; shortly after taking the drug I experienced sensation of dryness in throat, with feeling of fulness and pressure at temples. While reading a book letters gradually grew indistinct and seemed wavering before eyes. These sensations were succeeded by vertigo, in consequence of which I was obliged to lie down. Fulness of temples and also of forehead, with very slight pain; can scarcely walk, am so dizzy; pupils somewhat dilated. Again, during same afternoon, took 5 gr. 2nd dec. trit., which I had difficulty in swallowing on account of dryness of throat. Drank part of a glass of water which seemed to taste like A. Dull pain in temples, coming on at intervals of perhaps ¼ h. and lasting a few m. This pain is not severe but seems like a deep heavy pressure; at other times it is a steady tension in anterior cerebral region, as if

* It would be interesting to compare this discreet summing-up of Greding's with the numerous symptoms (140 in all) which Hahnemann has extracted from his narratives, and set down to the drug.—EDS.

brain was being pressed outward in all directions. Slight nausea, lasting but a few m., coming on again after an interval of ½ h. Slight numbness and prickling in hands, extending to tips of fingers. Prickling soon ceased, but numbness continued and increased, till in a short time there was complete loss of sensation. Lost power to estimate distances, either by eye or touch; touching an object does not produce the slightest sensation. Upon attempting to place hand upon a table cannot tell when hand touches it. Continual opening and shutting hands and grasping at imaginary objects in air. Thrusting pins into skin causes no sensation of pain; water, either warm or cold, glides over surface of body without moistening it or producing any appreciable sensation. This anæsthesia continued several h. Loss of sensation in the buccal cavity, with complete loss of taste. When swallowing water from a tumbler I could not be persuaded that I had drunk any until convinced by looking into glass. Teeth feel "on edge." Excessive dilatation of pupils; eyes appear fixed and glassy; entire loss of power to compare objects with eye and determine their respective distances. In attempting to walk would reel and stagger, catch at objects which appeared to me in close proximity, but which in reality were far from my reach; would often stumble over objects which to me seemed to be many feet away. Immediately upon closing eyes, after retiring, the mind became filled with strange and fanciful ideas, rambling, incoherent speech, spectral illusions, with frequent fits of wild, uncontrollable laughter. The delirium and spectral illusions continued through the n., during which time I fancied myself afflicted with epilepsy, and was constantly fearful lest others should discover my unfortunate condition; was nearly oblivious to all that transpired during the latter part of the night, but know from bruises received and sensations of pain occasionally experienced upon coming in contact with a stove, chair, table, or some solid body, that it was passed in the wildest delirium. July 5, 6 a.m., feel as though awakened from a dream; pupils very much dilated; spectral illusions continue; frequently through forenoon thought that persons in the room spoke to me, and would carry on conversation with these imaginary beings; am absent-minded and forgetful. When conversing, after partly finishing a sentence, was often obliged to stop and inquire what I had been saying; while talking with persons they suddenly vanish. Jerkings of muscles, particularly those of legs, arms and face. While attempting to drink from a glass my arm suddenly contracted and water was spilled. While walking the flexor muscles of one or both legs would suddenly contract, throwing me to ground; do not dare to walk across room for fear of falling. 12, m., most of symptoms abating and reason is slowly returning. Eyes intolerant to light; pupils still much dilated; can see to read a little, but after a few words letters grow indistinct, and am obliged to close eyes to rest them; feeling of pressure in anterior part of the head still continues. July 6.—Pupils continue somewhat dilated. Slight twitching of single muscles. There remained for several d. difficulty of fixing attention upon anything for more than a few m. at a time, after which no more symptoms were noticed.

b. Aug. 7, 1867, 8 p.m., took 1 gr. 2nd dec. trit. No symptoms,

except slight dryness of fauces. 8th, 8 p.m., took 1 gr. 2nd dec. trit. In a few m. feeling of dryness in throat, causing constant inclination to cough. Swallowing water affords momentary relief. 9, dull pain in eyes, and slight pain in temples. 9.15, retired. Slight pain in eyes continued for about 2 h., accompanied part of time by unpleasant sensation of fulness and pressure in anterior part of head, making me restless and uneasy. Continued tossing about and changing position in bed; did not sleep any till near m. Dryness of mouth, and that continued through n. 9th.—Arose feeling uneasy and unrefreshed. Sensation of fulness in forehead still continues. There has been at no time, either in this proving or the preceding, any throbbing of carotids or arteries of head. Eyes feel wearied; pupils dilated. Dizziness upon moving head quickly. These symptoms continued through d. At 8 p.m., took ½ gr. 2nd dec. trit. In a few m. dryness of fauces seems extending over whole mouth. 10, head feels full and uncomfortable. 12, midnight, sharp pain under r. eye, with slight pain in temples; head hot; pupils widely dilated. 1 a.m., retired and slept soundly until morning. 10th, 7 a.m., head feels dull and unpleasant; pupils still dilated; dimness of vision; dizziness upon moving the head suddenly. 6 p.m., slight pain in anterior superior cerebral region, coming on shortly after taking drug, continuing through n. and next d. 11th.—Took none of the drug. Dull pain in head continues, with dizziness upon moving suddenly. 12th.—Slight pain in anterior part of head through d. 8 p.m., took ½ gr. of 2nd dec. Dull pain in eyes and head; pupils dilated; no other symptoms. 13th, 8 p.m., took same. No other symptoms than slight fulness in front part of head and dilatation of pupils. 14th, 10 a.m., took 1 gr. of 2nd dec. In a short time dryness of throat and feeling of pressure in anterior and superior cerebral regions. 12, m., numbness of fingers and partial loss of sensation; cannot tell when I am holding small objects in hand; hands feel dry and glossy; pupils dilated; cannot see to read. After looking at objects a few moments they become indistinct and fade from view. Dryness of the throat has extended over entire buccal cavity; mucous membrane of lips dry and parched; water affords no relief. Dizziness when attempting to walk; mouth very dry, so dry that upon inserting the finger it will not be moistened. Food all tastes alike, like sawdust; tastes dry and cannot be swallowed except by washing it down with some liquid, owing to the deficiency of secretion of saliva. 7 p.m., all symptoms have gradually abated, till now there only remains dull heavy pain in forehead, slight dilatation of pupils and dimness of vision. 15th.—No more symptoms. (Dr. HALE's provings, *Trans. of N.Y. State Hom. Med. Soc.*, vi, 83.)

2. C. S. FAHENSTOCK. Temperament nervo-bilious; health good; habits regular; uses little tea or coffee; does not use alcohol; pulse from 80 to 85. Dec. 5th, 1867, 10.20 p. m., in usual health, pulse 85; took 1 gr. 1st dec. trit. 10.25, pulse 96. 11.5, took ¼ grain 1st dec. trit. Dryness of tongue and fauces immediately after taking second dose. When asked to protrude tongue, he does it with difficulty and only after considerable effort; cannot move the tongue about in mouth at will. Thick, viscid or slimy mucus in

mouth ; stoppage of secretion of saliva ; smoking does not bring any saliva into mouth ; pulse 124 ; pupils somewhat dilated ; slight sweetish taste in mouth. 11.30, throbbing in temporal regions ; head hot ; pulse 130, but not so full ; small quantity of thick, frothy, white sputa is ejected at intervals ; slight nausea ; deep-seated dull pain in back part of eyes ; smoking does not excite any flow of saliva ; hands feel smooth and glossy ; pupils considerably dilated ; fauces and uvula red ; drops of white mucus sticking to uvula ; mouth very dry ; no thirst ; cannot feel passage of water through mouth or throat when drinking ; pulse 113, not so full, but harder. 12, m., slight pain in temples ; dryness of mouth has increased and now extends to lips, which feel dry and parched ; food is tasteless ; pulse 100, natural in character. 12.15, pulse 104 ; some vertigo ; buccal cavity feels hot ; other symptoms the same. 12.30, fell asleep while lying upon sofa. 2.30, awoke very dizzy, cannot walk across the floor, but stagger toward objects for support ; same slimy taste in the mouth ; can see but little ; pupils considerably dilated, but contract readily under the influence of light ; pulse 104 ; retired for n. 6th, 7 a.m., awoke still feeling quite dizzy ; was restless and uneasy through n., but slept a considerable part of the time ; dull, heavy, aching pain in eyelids, not severe. Eyelids feel sore, are red and congested ; pulse 86, full and soft ; tongue slightly coated white ; uvula red ; thin coating of viscid, slimy, white mucus over entire buccal cavity ; could swallow no breakfast on account of deficiency of buccal secretions to moisten food. 7.30, can drink water without difficulty, but it produces no sensation in mouth or throat except slight feeling of coldness ; is scarcely aware when he swallows it. Feels drowsy and not inclined to speak or move about. 8.30, has slept most of time since last record ; took 1¼ grains 1st dec. ; walked about a mile to college. 9.30, pupils a great deal dilated ; eyes look glassy and congested ; eyelids swollen ; tongue thickly coated with whitish mucus ; same numbness and partial loss of sensation in fingers ; feels as though he were holding a book in his hands which he is afraid he will drop ; upon taking a small object, as a pin, into his hand, it appears to him as though there were five or six of them ; sensation of fulness in anterior part of brain ; mucous membrane of nose dry ; slight nausea. 11.30, pulse 108 ; tongue trembles when protruded from mouth ; dilatation of pupils is increasing ; can see but little ; some vertigo. 12.30 p.m., during last half hour has had several slight spasms of muscles of limbs and one of entire body. 1.30, first noticed diplopia. 6, mind has been wandering a considerable part of time through afternoon ; often thinks he is spoken to and answers imaginary questions. He had eructations tasting like yolk of eggs at intervals through d. ; pupils still dilated ; can see but little ; appears dull and stupid. 8, mouth and throat are becoming more moist ; slight pain in eyes still continues ; it is as if eyeballs were pressed from without in every direction. 10, pulse normal ; has taken a cup of strong coffee ; can see to read coarse print a few moments at a time ; any sudden noise startles him ; mouth and nose quite moist. 7th, 8 a.m., has had profuse urination for past 24 h. ; excessive secretion of saliva ; neuralgic pains commencing under l. orbit and running back to ear, lasting perhaps 10 m. at a time and then disappearing for 15 or 20 ;

these have been noticed for several h.; throat feels raw and irritated; has had several paroxysms of coughing, caused by collection of mucus in throat, occurring once in 15 or 30 m., attended with difficult expectoration of a thick, tough mucus; after coughing, burning in throat; mucous membrane of throat slightly darker than in health, and presents a mottled appearance; pupils are still dilated; can see to read quite distinctly for a few moments, after which letters, words and lines run together and become indistinct. No more symptoms were noticed, but prover was absent-minded at intervals for several d., and found difficulty in fixing his mind upon any subject for more than a few m. at a time. (*Ibid.*)

3. C. H. CHAMBERLAIN, constitution good; habits regular; sanguine temperament; seldom uses stimulants of any kind. Dec. 6th, 1867.—In usual health; pulse 72. 10.45 a.m., took 2 gr. 1st dec. trit. 10.50, pupils have commenced to dilate. 11, pulse 80; flushed face; burning in face; slight vertigo and pressure in temples, with little or no pain. 11.20, pulse 116; tongue and mouth dry; considerable vertigo, particularly upon turning head suddenly; feeling of warmth as of a glow through thoracic region. 11.40, pulse considerably dilated; vertigo increasing. 12, m., pulse 112; mouth and tongue very dry, with great difficulty in swallowing. Same symptoms continued with little change till 6 o'clock, when prover took a light supper, having to wash each mouthful of food down with water, being unable to moisten it otherwise on account of deficiency of saliva. For the past 2 h. has had occasional spasms of voluntary muscles, particularly those of extremities. 7 p.m., retired. 10, has been nervous and wakeful for the last 3 h.; hurried from bed and vomited profusely; easy vomiting of a watery fluid, tasting bitter at first, nearly tasteless afterwards; during vomiting, very severe sticking pains in umbilical region; vomited about 5 m. and then staggered back to bed. 11, another similar attack of vomiting; very slight pain in temples and eyes; eyes feel swollen, and pain in eyes and temples slightly increases with each pulsation of heart. 12, hurried from bed by urgent desire to stool, followed by very copious watery stool coming with a gush. This stool relieved pain in umbilical region. 2 a.m., another copious stool. 3, fell asleep. 7, arose and immediately had another copious, watery stool. During n. had following symptoms: Spectral illusions; picking at bedclothes as if searching for something lost, with confused mutterings; tongue thick, cannot articulate distinctly; bright flashes before eyes immediately upon closing them. At times, while it seemed to him that he was fully conscious, saw persons at bedside and slowly reached out to grasp them, but his hand would pass through the object, and no sense of touch tell him that there was any material in the apparition; saw books and newspapers and tried to grasp these, but they would either recede or hand would come in contact with them and feel nothing. 8, ate a light breakfast; throat has been quite sore for the past 6 h.; pain upon swallowing. 12, m., has had slight vertigo at intervals during forenoon; pupils still dilated, with diplopia; upon looking at a newspaper, letters seem to expand and contract with each pulsation of heart; can read but little. 1 p.m., secretion of saliva normal; symptoms all better. After this no new

symptoms were noted, but prover continued absent-minded at intervals for nearly a week afterwards. (*Ibid.*)

4. J. M. SMITH, nervo-sanguine temperament, light complexion, blue eyes; habits regular; takes but little active exercise, labour being chiefly mental. Dec. 10th, 1867.—In usual health; pulse 78. 11 a.m., took 2 gr. 1st dec. trit. 11.30, pulse 68; slight feeling of fulness in throat. 11.45, pulse 130. 12, m., pulse 136; heart's action greatly increased. 12.15, pulse 138. 12.30, dined; had great difficulty in swallowing food on account of non-secretion of saliva; food will remain in mouth for minutes without becoming moistened in the least; eyes considerably congested, but pupils have scarcely commenced to dilate; slight pressure in temples; feels better sitting or standing than lying down; vertigo caused by turning head quickly; feels dull and not inclined to move about or to converse; feeling in head as though temples were being pressed from without; pressure worse on r. side. Tip and edges of tongue light red; tongue trembles when protruded from mouth; pulse 132; head feels hot; everything tastes salt. 1.15, pulse 112 lying down. Pulse has been taken until now when prover was standing. 1.30, pulse 112; mouth not so dry; hands hot and dry. 2, pulse 112. 2.30, pulse 112; is hot and feverish; pupils dilating; urine passed slowly and increased in quantity. 5.30, pupils more dilated; pulse 102; other symptoms same; prover has appeared dull and stupid all afternoon. 6 p.m., ate light supper, having to wash food down with water; cannot estimate distances correctly; when asked to put his hand upon an object within his reach, he either reaches too far or not far enough; considerable vertigo; looks and acts as if he had been on a "spree;" pulse 96, full and soft, has been full and soft for several h.; throat feels raw and sore. 8, has dull, bruised feeling in temples, and within past 10 m. severe pain in l. eyeball; eyes and lids feel sore to touch; pupils dilated; cannot see to read; pulse 76, soft. 9, pulse 76; soreness of throat increasing till quite hoarse. 10, pulse 76. 11, pulse 76. 12, m., pulse 60; has had slight jactitation of muscles of leg; when he closes his eyes mind becomes confused and he sees all sorts of spectres. At 12.30, retired. 7.30 a.m., arose feeling weary and unrefreshed; was very restless through n.; dreamed of running horses, of playing base ball, of amputating a man's leg; saw dim, shadowy forms sitting or standing by bedside or moving in air; same dull pressure in temples continues, but with no headache. Eyes a good deal congested, but pupils are not nor have they been much dilated; mucous membrane of the mouth dark red; throat sore; mouth not so dry as last night; slight vertigo; was awakened several times in n. by spasmodic jerkings of muscles of legs. No more prominent symptoms. Prover was dull and disinclined to study for several days. (*Ibid.*)

5. *a.* If gr. $\frac{1}{160}$ to $\frac{1}{120}$ be injected beneath the skin of a person in health, we shall observe, after 10 or 20 m., an acceleration of the pulse, and generally a slight increase in volume and power. If the pulse was previously slow and feeble, or intermitting, the change will be very decided. The acceleration will generally amount to 20 beats a m.; it will take place suddenly, and attain its maximum within 1 or 2 m.

After being maintained for half an hour, a gradual decline takes place, and the heart soon returns to its usual state, and continues to beat as quickly and powerfully as before. Just as the pulse rises, a slight giddiness is often perceptible. Usually these will be the whole of the symptoms; but in weak and delicate adults a feeling of dryness of mouth and throat, and, at the end of an h. or two, a slight dilatation of the pupil in a subdued light, will be superadded.

b. When gr. $\frac{1}{96}$ is used, the acceleration of pulse will usually amount to 25 beats; the anterior part of the tongue and hard palate will be generally dry; and about the tip of the tongue the dryness will often be so complete as to render this part parched, rough, and brown. At the end of 2 h., the pupils will have dilated from $\frac{1}{10}''$ to $\frac{1}{8}''$.

c. After the use of gr. $\frac{1}{60}$, the acceleration of pulse will be found to range between 20 and 60 beats in different individuals. The rise is attended by considerable giddiness and waviness of the vision. The patient walks cautiously, and with an inclination to unsteadiness. After 20 or 40 m. he will complain, with some huskiness of voice, of great dryness of throat and mouth; and the anterior part of the tongue, or the whole of the dorsum, will be found dry, brown, and rough. The hard and (in many persons) soft palate also will be perfectly dry and glazed. There will be more or less somnolency, and sometimes a little flushing of the face. The dilatation of the pupils will amount to $\frac{1}{7}''$ or $\frac{1}{6}''$, according as they measured the $\frac{1}{10}''$ or $\frac{1}{8}''$ previously.

d. The effects of gr. $\frac{1}{48}$ are as follows:—After 10 or 15 m., acceleration of pulse from 20 to 70 beats; no apparent change in volume, but a decided increase in the force of the cardiac contractions and of the arterial tone; a general diffusion of warmth, a slight throbbing or heaving sensation in the carotids, and a feeling of pressure under the parietal bones; giddiness, heaviness, drowsiness, or actual sleep, with a great tendency to dreamy delirium, and, in women, slight occasional startings; complete dryness of the tongue, roof of the mouth, and soft palate, extending more or less down the pharynx and larynx, rendering the voice husky, and often inducing dry cough and difficulty of deglutition; a parched state of the lips, occasional dryness of mucous membranes of nose and eyes, and increasing dilatation of pupils. After continuing about 2 h., the dryness of mouth is suddenly relieved by the appearance of a viscid acid secretion of an offensive odour, like the sweat of the feet. The mouth becomes foul and clammy, and a bitter coppery taste is complained of. As moisture thus returns to the mouth, the pulse is observed to fall, and it now rapidly resumes its ordinary rate and character. At this time the pupils have reached their maximum dilatation, and measure about $\frac{1}{5}''$; but when exposed to the brightest light, they will still contract to $\frac{1}{4}$,* $\frac{1}{6}$, or even $\frac{1}{8}''$, according to their original size. During the action of the medicine there will be a slight elevation of the temperature of the surface, rarely exceeding 1°, and a still slighter and less appreciable rise of the internal temperature of the body. No difference will be observed in the rate of respiration, except (as may happen in a nervous woman) a little emotional excitement on the sudden accession of the giddiness. The

* So given by Dr. Harley, but the discrepancy is apparent.—EDS.

patient occasionally heaves a deep sigh, and still oftener takes a prolonged yawn, as he sits still in a dull, apathetic, or drowsy condition. After the pulse has resumed its ordinary rate, and the mouth has moistened, the giddiness and drowsiness pass off, and the patient appears tolerably lively and brisk in mind and body. But he will himself continue to feel for some h. longer such languor of body and mind as will render him disinclined for, or even incapable of, active bodily or mental exertion. A little dimness of vision also remains, and the patient is unable to thread a needle, or even to read.

e. The $\frac{1}{40}$th of a grain reproduces, in the young and robust, the effects last described a little intensified and prolonged. . . . The mucous layer of the tongue will become completely dry, brown, and hard; the hard and soft palates, arches of the fauces and uvula, and back of the pharynx, dry and glazed, so that the moveable parts are wrinkled as often as the muscular tissue contracts. . . . The dryness persists to some extent for many h.; and if the patient sleeps he is troubled with dreams, and at intervals disturbed by a start. A fancied noise is a common cause of awakening, and at these times the patient generally manifests a little delirium.

f. The $\frac{1}{32}$ of a grain produces symptoms of much the same intensity as the $\frac{1}{40}$, but the cerebral effects will be slightly increased; and if the patient be weakened by disease, or be unusually susceptible of the action of the medicine, instead of sleep there will be a little meddlesome delirium, and he will require attention to prevent him from getting out of bed. He will have little or no inclination for sleep, and will probably be busily influenced by pleasing illusions and delusions, meddling with everything in his way, picking at and handling imaginary objects in the air, and accompanying his acts by muttering and smiling, or with loud chattering, interrupted by subdued laughter.

g. The following were the effects of gr. $\frac{1}{20}$:—S. M—, able-bodied man, æt. 49, well save for facial neuralgia. Pulse 78, resp. 20, tongue clean and moist, pupils $\frac{1}{9}$." After 20 m. pulse 110, unchanged in volume and power; resp. 20. Hard palate and anterior part of tongue and soft palate dry, but not parched or glazed. Pupils $\frac{1}{7}$". Felt sleepy and a little giddy, but walked steadily. After 1 h., pulse 108, unchanged; resp. 20. Dorsum of tongue dry and parched, and entire roof of mouth and velum of palate dry and glazed. Pupils $\frac{1}{6}$". Continued giddy, but walked steadily, though slowly and cautiously; was greatly inclined for sleep, but had not slept. Gaped very often, and said he should soon be asleep if he were in bed. There was no tendency to delirium, and perfect freedom from nervousness and restlessness. Skin naturally cool and moist. After 2 h., pulse 98, diminished in volume and power, but still quite regular; resp. 20, regular, mouth as parched as before, voice husky. Pupils between $\frac{1}{6}$ and $\frac{1}{5}$"; slight injection of conjunctival membrane. Had slept, and continued very drowsy. Was entirely free from nervous symptoms, and stated that he was quite able to walk home, a distance of a mile. He did so at this time; but when he reached the house he could not put the key into the door, "because he felt so stupid and shaky in the hand," and had to seek assistance. Went to bed and slept heavily all n. The throat and

mouth were very dry in the m., but this passed off after breakfast, and there were no after-effects.

h. If larger doses be given there will be superadded a distressing fluttering sensation in the cardiac region; exquisite sensibility of hearing and frequent illusions of this sense; staggering or complete inability to walk; insomnia, restlessness, and frequently great nervous agitation of mind and body. (HARLEY, *op. cit.*, p. 202.)

6. SCHROFF. From 0·005 gramme = 0·068 grain, in two persons. After 15 m., headache, spreading from middle of frontal region. After 30 m., slight dilatation of pupils. After 40 m. the skin became very dry and hot, with general sensation of biting and tickling as from vermin. The dryness extended to the mucous membrane of mouth and fauces, and became so intense that swallowing was impossible. Pulse fell at first 10 beats, but soon commenced to rise, and in 1½ h. was quickened by 40 beats. At the same time there was great weakness of the muscular movements, which increased to a transient but pretty general trembling, so that the gait became staggering like that of a tipsy person. After 1½ h. there occurred symptoms of great excitement, restlessness, tendency to do everything hurriedly, lastly quarrelsomeness, so that the two provers (who were in the same room) began to wrestle and fight with one another, which they had never before had a tendency to do. The after-effects lasted three days, and consisted of continued dilatation of pupils, weariness of limbs, disinclination for mental work, and attacks of sense of coldness along the spine. The digestion was unimpaired, and the urinary secretion was not increased, in spite of the dryness of the skin. (*Lehrb. der Pharm.*, p. 495.)

7. *a. 4th dec. trit.*—20th March, 1859, at 10 p.m. took 3 grs. N. full of dreams.—21st. In m. felt fatigued, head confused as after a ball night or a night when much disturbed by cases; soon went off in open air. No pleasure in reading or writing.—22nd. At 10 p.m. 3 grs. Many frightful dreams, which woke him 3 times. They were unconnected and related to being murdered, falling from a height into an abyss, attacked by big dogs, &c. In m. very exhausted, unwilling to get up, lay in a dreamy half sleep. Head confused, heavy, inclined to go to bed again after having dressed. All d. cross, quarrelsome, nobody could do anything right for him. Mere trifles excited his anger. App. not affected. Though constantly hungry, no relish of food, felt soon satiated, food was tasteless. Thirst increased. Urine clear, equal to fluid imbibed. Stool as usual. N. between 23rd and 24th quieter, though not dreamless. All d. weary and dejected. Next n. quiet, sleep refreshing, quite well during d., except unusual thirst.—25th, 10 p.m., 5 gr. Soon fell asleep, dreamt much, and woke frequently in consequence. Unwilling to get up. Head confused, could be kept up with difficulty. Fine painful stitches over forehead and temples occurring every 4 to 10 m. and lasting from a few seconds to 1 m. Disinclination for all work. Very cross, great inclination to scold and quarrel, internal restlessness, changing to great anxiety, constant hunger, and the oftener he ate the worse it became. Loathing at meat and beer; drinking beer caused feeling of emptiness in stomach and painful pressure there. These symptoms continued during the

whole proving. Desire for salt food, *e. g.* sardines, salt herring, smoked meat, &c.—26th. No med. Same symptoms, only milder.—29th, 9.30 a.m., took 5 gr. During d. nothing except increased thirst and urine, and same stomach symptoms. In e. premature sleepiness, must go to bed at 8.30, could not sleep, heard every noise, but did not open eyes. Dreamt that he was in a forest and pursued by snakes, sought to run away, but could not go fast, the snakes overtook him, twisted round his body, could not get rid of them; or saw a ball on the table which quickly grew so big that the room could not hold it and it seemed to press on him; or the walls of the room seemed to separate and the house about to fall down; or, clad only in his shirt, he got to a place where no people were, and as several persons approached him he sought to run away, but could not, being paralysed, &c. These dreams tired him much; woke with a scream. During these dreams he lay quite still, only occasionally sighing.—30th. Woke with confused head, severe vertigo increased on rising up in bed, staggering, nearly fell twice, shooting pains at base of skull, especially above eyes, at every movement and especially on walking. In open air felt as if head were screwed, and walking caused the most acute shooting pains in head. These symptoms grew better about 11 a.m. and went off by e. The stomach symptoms lasted till 2nd April, when he took 5 grs. All d. felt inward coldness and outward burning heat of whole body. At 6 p.m. was hot all over, anxiety and restlessness, could not remain in one place; hurried home dreading some misfortune, alternated between open air and house. Went to bed at 7.30, could not get to sleep before 11; tossed about, palpitation of heart that could be seen and felt, indescribable anxiety as if he had committed a crime. N. full of dreams, often wakened by sudden stretching out of legs. Awoke next m. with weight and confusion of head, vertigo on raising himself up with darkness before eyes; then vomiting of green bitter fluid, whereafter head was relieved. Weak in open air. N. again full of dreams, but sleep more refreshing. Took no med. till 16th April. Sleep was not so refreshing as before the proving. The excessive thirst went off the 6th d., the increased urine lasted till 11th April. The stomach pains continued always slightly.

b. 3rd dec. trit.—16th April, 8 a.m. 4 grs. of this trit. repeated every 4th d. No symptoms in the d. E., giddy confusion of head, alternating with excited fancy, great weariness of all the body and sometimes tinnitus aurium. Sleepless till 1 a.m., then frightful dreams, objects of a round or oval shape seemed to be elongated. The faces of people seemed to be as long vertically as all the rest of the body, the prominent features, as nose and chin, seemed very long and their extreme outline nebulous. This lasted some h. On waking at 3.30 a.m. these phantasms still floated before him, but did not recur on again going to sleep. The pupils next m. were very large and the iris very sluggish. The appearances in the dreams were renewed in a slighter degree by d. All faces appeared somewhat longer, especially the ears, which looked as long as donkeys' ears. A round rubber-ball and plates had an oval shape. About 10 p.m. this deception ceased. After midday meal vomited food. A glass of beer at supper

caused contractive pain in stomach, compelling him to sit down, increased by walking. Frequent eructation of air, without nausea. This pain continued to increase and only went off after 3 h. Thirst and urine perceptibly increased. Next n. quieter and on 18th April well.—19th. Dry tickling cough (attributed to catching cold).—20th. Repeated the dose. Cough increased and was more fatiguing; occurred periodically, was dry without expectoration, with sore feeling in throat and pressure on chest. N. troubled with dreams, frequent waking from sudden stretching out of limbs. Woke next m. with painful shooting in l. temporal region extending to behind ear and hardly allowing l. eye to be opened; this went off after being some time in open air. No return of headache. Cough increased so much that the attempt to speak, or the tobacco smoke of a passer-by, brought it on immediately. After taking hep. and phos. for six days this went off. —1st May. Resumed proving, but took 8 grains. At 6 p.m. constant choking in throat, followed by impossibility to swallow, with feeling as if someone grasped his larynx. This symptom alarmed him and he took bell. 15, and applied cold compress to head, which was very hot, and went to bed. About 9 p.m. breathed freely and could swallow.—10th May. When cough had gone, took 3 grs. The symptoms were similar. During the whole proving had stool only every two to four d., usually daily. The cutaneous temperature varied often; sometimes flushes of heat, sometimes cold down back; the cold predominated. Was either sad, dejected, in constant anxiety and restlessness, anticipating misfortune, or very angry and fond of solitude; seldom any cheerfulness. P. not much affected, normally 60; it was generally at that figure; it once rose to 96, and one day was 88. The respiration, normally 20, occasionally but seldom went up to 24, 26, and once 27. The urinary secretion was in proportion to the fluid drunk. (EIDHERR, *Allg. hom. Zeit.*, lx.)

8. KAFKA.—I am forty-six years of age, of robust constitution, and am not subject to any other disease than muscular and articular rheumatism. On September 12th, 1855, at 10 a.m., 2 h. after breakfast, which consisted of two cups of coffee and bread, I took gr. $\frac{1}{60}$ of sulphate of A. In 15 m. after I felt an uneasy sensation in the stomach, accompanied with frequent empty eructations, affording no relief. The uneasiness, which gradually became associated with nausea and retching, increased to a pressing, sticking, and contractive pain, accompanied with frequent empty eructations. This spasm of the stomach, which was attended with paleness of the face, slight perspiration, ringing in the ears, and an aching pain in the forehead, lasted until noon, when it was succeeded by a gradually increasing feeling of dryness of the mouth and throat, becoming so great by 1 o'clock that I could not speak a word, and my tongue was nearly adherent to the roof of my mouth. After taking a glass of water the sensation of dryness and general feeling of illness gradually left me, and by 2 o'clock all the morbid symptoms (excepting the dilatation of the pupils, which supervened with the gastric pains, and which lasted 2 d. longer, together with some paleness of the face) had entirely disappeared. On the 18th, and again

on the 25th, I repeated the experiment with exactly the same result. (*Ibid.*, lii, 178.)

9. Dr. R. PERCY took gr. $\frac{1}{10}$ of sulphate of A. in an ounce of water. It had a distinct persistently bitter taste, and produced a numb sensation upon the tongue, somewhat similar to, though less in degree than, that produced by aconite. In about 10 m. it produced a sense of nausea, which continued to increase until an effort was made to vomit, but, although this occurred several times, nothing was thrown up. To this intense thirst succeeded, and a frontal headache, relieved by closing the eyes. Next a dryness was felt in the throat, and the tongue and mouth felt dry and feverish. These symptoms were not relieved, and only mitigated for a short time, by drinking water. The dryness of throat increased, and was persistent for several h., causing at first almost constant deglutition, but towards the last a strong effort to avoid deglutition, which had become painful. During the first 2 h. the pulse was less frequent, but afterwards became smaller and more rapid. The eyes soon lost all control of distance, a printed book held at the usual distance was a perfect blur; held a long way off letters could be distinguished, but the words, upon looking at them, soon ran into confusion; objects at a distance could be plainly seen, even a little more plainly than usual (hyperopia); but near objects, though for a moment distinguished, soon lost their distinctness. A numb or crawling sensation, a formication, was felt down the back, upon the arms and back of the hands. This formication was intense and very unpleasant upon the palate. Light became unpleasant to the eyes, causing pain deep in the eyeballs. Motion became unpleasant, and if the feet were lifted in walking the floor seemed to recede from them before they again were put down. A sliding of the feet along the floor seemed to be the only safe way of locomotion. The head began to be dizzy, and from fear of falling it was necessary to be seated in an easy chair. Thirst at this time was very great, but only little water could be taken at a time, as the effort of swallowing was unpleasant. A languid feeling came on as the semi-recumbent position was assumed, and whether sleep accompanied with wild fantastic dreams, or waking hallucinations, followed, it was impossible to tell. Whichever they were they were exactly the opposite of those produced by cannabis indica, for all the imaginations and conversations were of the long past, none of the future. Whether there was total blindness, or merely an imagination of blindness, could not be remembered; but if there was blindness to the external eye, the mind saw all its images with great distinctness, and the impress of them was left with vividness. There was consciousness of individuality, but the actions were performed by others, who were embodied spirits of those long since departed. Lengthy conversations of a most pleasant character were held with Plato, Alcibiades, Aspasia, and others. How long this state lasted cannot be told, but sound profound sleep must have followed, for consciousness to external objects did not return till 16 h. after taking the A. Awaking took place suddenly; there was no pain, no headache, nothing abnormal but languor and disturbed vision. The bladder had not been emptied during these 16 h., and although a large quantity of water had been drunk, but a moderate quantity of

urine was passed. The vision was not clear for several days. (*N. Y. Med. Journ.*, viii, 254.).

II. *Poisonings.* 1. *a.* At 9 o'clock on Sunday m. my second child, a hearty little boy three years and eight months old, was brought to my bedroom by the nurse, who said she did not know what was the matter with him, but he seemed very giddy and could not stand. Her account was that, hearing what she supposed to be quarrelling between him and his brother, who were alone together in the breakfast-room awaiting our assembling at breakfast, she took him into the kitchen, and on setting him on his feet he fell down. She lifted him up, and told him to run along, but he again fell, and appeared to have no power of standing. On observing this she immediately brought him up to me.

b. His face was at this time flushed and mottled with white, his eyes brilliant, and his manner and appearance altogether very strange and excited, while the expression of his countenance was quite maniacal. He was evidently unconscious, and very irritable, striking his mother when she took him from the nurse. On placing him on the bed he immediately began to pick at the bedclothes, and to grasp at imaginary objects. [It was now ascertained that he had had access to a room in which was a solution of A. containing nearly half a grain, and that this had disappeared from the vessel containing it.] The cause of the symptoms was but too apparent. I rushed with the child to the window, and the fully-dilated pupils at once confirmed my suspicion. Dr. Fincham was sent for, but long before his arrival, and in about 5 m. after the discovery, I administered 20 grains of sulphate of zinc, and on the arrival of the doctor some mustard-and-water also was given; but ¾ h. elapsed from the giving of the zinc before vomiting took place. The quantity of fluid expelled did not exceed that given with the zinc, which was ejected by one effort; and no subsequent retching could be produced by the mustard-and-water.

c. As no more vomiting could be excited, and it seemed probable that all the poison which was not absorbed had been ejected, stimulants were had recourse to, viz. brandy-and-water, ether, and ammonia; one or other of which was given every quarter of an h.; there was, however, great difficulty in getting the child to swallow, each attempt to do so producing paroxysms of suffocation, which appeared to threaten his existence; a great deal of what was put into the mouth was thus wasted. During the whole of the time, till 1 p.m., the child was insensible; the pupils were widely dilated and immoveable, the eyes open, and the lids not winking on passing the finger in front of them; there was occasional jactitation; the skin was pungently hot and dry and covered with a rash closely resembling that of scarlatina, which the child was frequently scratching; the pulse was 170, and somewhat feeble.

d. From 1 to 2 p.m., brandy-and-milk was given from time to time, an enema of castor-oil in gruel was also administered, and brought away a small quantity of fæces. He vomited once during this period, and was evidently becoming more conscious; he made efforts to speak, and said "Papa;" his face was less red, and the expression more natural.

e. From 2 to 5 p.m.—The symptoms during this period exactly resembled those of delirium tremens. There was incessant rambling, great restlessness, a grasping at imaginary objects, and occasional screaming from fright. The character of the delirium varied; sometimes the child saw objects which frightened him, and the utmost terror was depicted on his countenance, and he clung to his nurse's neck, or threw himself violently in different directions, as if to escape them. This kind of delirium prevailed chiefly at the commencement of this period; towards the latter half the delusions were of a more pleasurable kind, his talking was more intelligible, he mentioned the name of his brother, his nurse, and "mamma," and grasped at his toys—as his whistle, which he blew in imagination, and he drew imaginary sketches with his pencil, and was very busy two or three times in poking into his mouth and eating imaginary currants, &c.

f. From this time gradually improvement occurred. At 6 p.m. the pulse had fallen to 144, and the skin grew less hot and red. He could not see his father, but recognised him by his voice, and wanted to play with him. He talked frequently about persons and things which he fancied were before him. He had vomited again at 5, and at 9.45 his bowels were moved, and he also passed water for the first time. From 10 to 12 p.m. he lay on the bed tolerably quiet; he winked a little when the candle was put close to his face, but saw nothing else; he said, "I can't see mamma." On awaking at 4 a.m., though his pupils were as much dilated as ever, he told his mother that he could see her, and at 8 could see a photograph of his grandmother over the chimney-piece. His difficulty in seeing small objects which were near him was now the most prominent feature remaining of his illness, and his attempts to make out the letters of a newspaper which happened to be in the room, putting the paper first in one position and then in another, and eventually throwing it from him in disgust, were highly amusing. The dilatation of the pupils gave his face a singular expression, and they did not recover their normal size and movements for nearly a week. (HOLTHOUSE, *Med. Times and Gaz.*, Dec. 17th, 1859.)

2. On Sunday m. Dr. Sharpey was in his usual health. A little before 1 o'clock the servant was alarmed by hearing a heavy fall, and on entering the room, found her master lying on his face in the corner, apparently insensible. Medical help was called, and the following is the report:—

a. "I found the patient sitting on the floor, supported by two servants, making futile efforts to rise. He was unconscious, and speaking incoherently at intervals. The skin was hot and pungent, face flushed, veins of forehead turgid, and head burning. Pupils slightly dilated, conjunctiva not injected, breathing natural, pulse 116, irregular, generally full, but varying much at intervals; heart's action irregular, and apparently obstructed; teeth and lips dry, and covered with sordes. We immediately placed him on a bed, but had great difficulty in keeping him there, as he was extremely restless and wanted to get up. He had no paralysis, moving all his limbs freely and forcibly. Gin-and-water, and, as soon as possible, ice, were applied to the head, and mustard poultices to the calves of the legs. Small doses of sal volatile

were administered in water, about six or eight drachms in all. After each dose he seemed much better. He became, however, more restless and delirious, talking constantly, apparently about his affairs, and busy with his hands, pulling the bedclothes about. On asking loudly if he had any pain in the head, he replied, "No pain whatever." It now became impossible to keep him in bed, and very difficult to prevent his walking about. He expressed a constant and frequent desire to pass water, but did not succeed in doing so. The bladder was found empty on percussing the abdomen."

b. Dr. Ringer saw him 4 h. later, and gives the following account:

"Dr. Sharpey was sitting on the edge of the bed, delirious, and a little drowsy. He looked at me, but did not recognise me. We could not attract his attention without speaking loudly to him. We tried to lead him to bed, but he expostulated with us, and said he would lose his train, that all his things were packed up, and that he must start immediately. We undressed him, but he warmly resisted, telling us continually that he should lose his train. He clutched hold of his things, and tried to pull on his trousers and to tie on his necktie. He displayed considerable strength, but his movements were rather unsteady, as if he had lost some control over his limbs, for when he tried to wipe away the dried mucus from his lips he raised his right hand with apparent difficulty a short way from his mouth, and then, with an effort and rather unsteady movement, raised his left hand and touched his lips. We lifted him into bed, but were obliged to restrain him, as he struggled to rise almost incessantly. He kept his eyes closed, but on speaking to him loudly he looked at us, caught perhaps one word or part of a sentence, repeated it, and said, "Ah, I shall lose my train." We could not make him understand where he was, nor that he was ill and must be kept quiet. He incessantly talked about his imaginary journey, and warmly expostulated with us for forcibly detaining him. He was not quarrelsome or ill-tempered, but attempted to reason with us. There was no paralysis, or twitching, or involuntary movements. His head and face were much flushed, and felt hot; the pulse full, bounding, and irregular. His speech was thick, probably from dryness of the mouth and throat. Owing to a recent operation for cataract, we could not accurately learn the state of the pupils. His breathing was natural; his skin felt hot and dry, and his lips were covered with dry mucus. He was troubled with a frequent desire to make water.

c. "At 9.30 p.m. the drowsiness had quite disappeared, but he was still more delirious and talkative. His hallucinations were the same, and he resisted still more energetically our attempts to keep him in bed. In fact, he jumped out of bed several times, and insisted on dressing himself. His movements were now quite steady and completely under his control. His voice was natural, his pulse softer, less full, and less frequent; his skin moist. He frequently asked for water to drink. He still had a frequent desire to micturate, but passed only a moderate quantity of water. I ordered him 20 grains of bromide of potassium, and left a little after 10.

d. "During the night the delirium gradually subsided, and in the early morning Dr. Sharpey had sufficiently recovered to quiet the alarm

of his friends by telling them he had taken some atropia by mistake, and thus accounted for his symptoms, which we had hitherto been unable to explain. At 9.30 next morning he had almost entirely recovered, there remained only a little difficulty in recollecting what had occurred shortly before he became insensible. His tongue was thickly loaded with a dirty grey fur. There was no rash or pain in the head throughout."

e. Dr. Sharpey concludes with an account of his own experiences. After telling how he took a solution of sulphate of A. by mistake for one of quinine, and that he remembered falling, he goes on:—"The first thing I can recollect is that I was struggling with people in the room, amongst whom was my nephew, whom I at once recognised when he told me who he was. I suppose I must have been very fractious in my delirium; I imagined I had to go off by a railway train, which started at 10 in the morning, and that the hour was approaching, whilst I had nothing ready for my journey; and I believed that I wished to dress, and to pack my things, but was thwarted and prevented by the people about me. At length I was persuaded that it was too late to catch the train, and agreed to wait till the e. I may here explain that I had come from Scotland by rail on the previous Thursday. I then became sensible that I was lifted into bed, and ordered on no account to rise, which I thought a most unreasonable restraint, especially as I was tormented with irritation in the bladder, and almost incessant desire to pass urine, which was in very small quantity. In this way I passed a very restless night, but slept fairly in the morning. Meanwhile my head began to clear; I remembered having taken atropia, and then was able to attend to my condition with some degree of intelligence. I had an intense feeling of dryness in my throat, which I knew to be an effect of the poison; this abated towards m.; then, although I could move my body and limbs, it was only by a great effort, and when I raised my arms they felt as if made of lead. This I ascribed to partial paralysis of the motor nerves, and I watched with some interest the return of power as the night advanced. As to my sensations, they were not blunted, but I misinterpreted them. Thus, I felt a wet cloth on my head, but imagined I had been out in the rain without my hat; and a dose of bromide of potassium given to me I recognised as a saline solution, but supposed it was mineral water from the Airthry spring, which I had tasted on the spot some ten days before." (*Lancet*, Sept. 27th, 1873.)

3. *a.* Woman, æt. 45, slightly-built nervous subject, sanguine temperament, took Feb. 1st, 1873, at 11 a.m., a teaspoonful of a sol. of gr. ij to ℥j. After ½ h. had dimness of vision, and bright circles of golden hue dancing before eyes. ♏xxv of tinct. opii were given; after taking which she complained of giddiness with sense of heat in stomach. In another ½ h., face suffused and hot, singing in ears; said that objects around her were steady, but flame-coloured, and appeared magnified (3 or 4 times their natural size). At 1.30 physician found her complaining of numbness and loss of sensory and motor power in lower limbs; could not stand without assistance; hands trembled; was perfectly conscious. Strong coffee and brandy were now given

at frequent intervals. In ½ h. after first dose of coffee began to feel drowsy, and finally fell into a stupor, from which she could only be roused by constant loud talking and jerking. This condition lasted 15 m.; after it passed off hands began to twitch, and she seized hands of friends spasmodically every few m. Pupils now strongly dilated, and face wore a wild, frightened expression, but she did not ramble. At 3 lapsed again into stupor, in which she muttered incoherently, and quite lost use of legs; arms continued to twitch and speech became thick; pulse 100; extremities cold. 5, continues in same condition; rambles at times; complains of sensation of great weight on chest, and says "life is being squeezed out of her." 7, same; pulse 130; skin and extremities cool. 10, still rambles at times; has attacks of loss of motor power in legs, lasting about 10 m., and alternating with intervals during which she can use them.

b. On 2nd, at 1 a.m., physician was sent for and found patient in state of furibund delirium. Power had quite returned to limbs, and she rushed frantically from one room into another, defying all attempts at restraint; but, being nearly blind, she constantly dashed herself against walls in her efforts to go from room to room, evidently imagining presence of door where none existed. From her ravings one could gather that she thought her friends were about to compel her to submit to an operation, and she fancied herself in the presence of an assembly of doctors for the purpose. She continued in much the same condition for an h., when symptoms somewhat abated. In 1 h. more she was got to bed, and almost immediately afterwards (5 a.m.) consciousness began to return. By 6 she was perfectly sensible. 10 a.m., pulse 110; fauces slightly congested; complains that throat, mouth, and lips feel dry and parched; also of extreme lassitude and weariness, and of sensation on raising head as if she would fall forward. Says that she can now see more distinctly with affected r. eye (syphilitic iritis) than with sound one, but complains of severe darting pain over r. eyebrow extending to outer canthus. Has also considerable vertigo, and occasional brilliant flashes of light before both eyes; sees nothing distinctly. Says that during her delirium all objects appeared doubled and trebled, and as if spotted with blood. At noon the brilliant flashes were replaced by numerous dark specks dancing before eyes. Dozed at intervals, during which she saw devils, and faces dotted over with dark spots, which appear also on faces of friends. Pupils still dilated, but slightly contractile. 3rd.—At 10 a.m., pulse 100; had passed restless n.; pain over r. eyebrow continues; still sees the black specks on closing the eyes; cannot see at all distinctly; pupils dilated, especially l.; has felt a very painful pricking sensation in throat all n. Feels now very weak and sinking, and expresses desire for brandy, which was allowed her. 4th.—Pulse 88; feels stronger, has slept more during n. pain at outer canthus is now a dull aching and extends to vertex. Still sees devils, &c., whenever she sleeps, and the faces of those around her still appear covered with dark spots. Up to 8th remained weak and languid, and had specks before eyes at times. Seen again on 15th and 27th, complained only of palpitations, at times severe.

Reporter considers that symptoms were at first somewhat confused

with those of the opium, but from 5 p.m. were due solely to the A. (Dr. J. G. BLACKLEY, *Monthly Hom. Rev.*, xvii, 481.)

4. Woman, æt. 30, swallowed with suicidal intent a spirituous solution of A. = 1½ gr. of the sulphate. After ½ h. she experienced nausea and dimness of sight; was unable to feel arms and legs, and being alarmed called for help. After 1 h. pulse 150, small and weak; face flushed; conjunctiva vividly injected; only a circular line of iris visible; was nearly blind, a thick cloud obstructed vision, and images were confused, with a reddish tinge; there was tendency to sleep, chilliness, cramp and tingling of extremities. After 2½ h. vomiting, readily induced by drinking warm fluids. After 4½ h. violent delirium and restlessness; tenesmus, and frequent desire to pass urine. After 10 h. pulse 110; patient had become calm, but could not sleep although inclined. During next 12 h. she obtained but little sleep; she was able, however, to rise in m., when pulse was frequent, small and irregular, and she complained of lassitude; pupils still widely dilated, and vision confused; recovery was now rapid. (ROUX, *Journ. de Chim. Méd.*, 1860, p. 529.)

5. An adult male took about gr. ij of sulphate in solution before breakfast. After 1 h. pulse very quick and of good volume; pupils completely dilated, eyes restless; was generally restless and unmanageable, refusing to answer, to swallow, or to be examined, appeared profoundly intoxicated. After 2 h. pulse very weak; hands cold; dragged legs when compelled to walk; was kept in forced exercise from 2nd to 6th h. After 8 h. insomnia, incoherent quarrelling, loss of memory, partial paralysis of arms and legs. Continued wakeful and delirious during next 4 h., and passed very little urine. Throughout succeeding n. hearing and sight were morbidly sensitive. After 48 h., pulse 108; tongue dry and furred, skin hot; was quite rational and nearly recovered. Catheterism was required during next 4 d. (LEACH, *Med. Times and Gaz.*, 1865, ii, 34.)

6. LUSSANA gives following as result of observations on patients, chiefly epileptic and neuralgic. The physiological effects of A., when taken continously, and in increasing doses, are as follows:

a. Dilatation and immobility of the pupil.—The dilatation is most marked at the beginning (14 to 20 m. after swallowing a dose of $\frac{1}{27}$ or $\frac{1}{30}$ of a gr.) and at the end of the experiment. At the height of the intoxication the pupil is quite immoveable, and has nearly its normal diameter. The return of a slight motion of the iris is the first sign that the effects of the remedy are diminishing. Dilatation of the pupils often continues for eight days after the cessation of the other symptoms.

b. Disturbance of the sight.—Objects appear as if enveloped in a fog. As the dose is increased, the obscurity increases even to perfect blindness. On omitting the remedy, these symptoms diminish with great rapidity, and disappear entirely in one or two days.

c. Somnolence and confusion of ideas.—First merely sluggishness of the mind, then dizziness, and a condition resembling commencing intoxication. Headache occurred in but one case.

d. Hallucinations of the sense of hearing.—Not frequent, consisting of various sounds, roaring, &c.

e. Hallucinations of the sight.—While the obscurity of objects is increasing, various phantoms are observed, gigantic forms, and sometimes laughable, sometimes terrifying appearances; also quick rotation and duplication of objects.

f. Anæsthesia.—Cessation of pains, especially of spasmodic neuralgiæ; diminished sensibility for painful physical impressions. The sense of touch alone appears to be but little affected.

g. Dryness of the mouth and fauces always occurs in a few days. At first it is only a subjective symptom, but later it can be observed objectively, depending upon a diminution of the salivary secretion, but never connected with gastro-enteric irritation, a symptom which was never observed.

h. Loss of appetite; present in all cases, changing to great voracity at the end of the experiment. There is no thirst, notwithstanding the dryness of the fauces.

i. Difficulty of utterance present at the height of the intoxication.

j. Delirium, often followed by, or alternating with, stupor, always occurs after larger doses ($\frac{1}{10}$ to $\frac{1}{4}$ of a gr.), is generally of a petulant, cheerful character, and disappears slowly.

k. Dysphagia is never absent if the use of the drug is persevered in, and keeps pace with the dryness of the fauces.

l. Redness of the skin was only observed in one person having a delicate white skin. The redness appeared so constantly in this case, from $\frac{1}{2}$ an h. to an h. after each dose, that is was undoubtedly caused by the medicine.

m. Torpor and paralytic trembling.—The limbs, especially the lower ones, gradually became weak, and the gait unsteady; finally the subject was obliged to lie down. Slight convulsive trembling of some of the muscles may be observed, but never spasm, painful retraction or spasmodic rigidity. With the loss of consciousness the motions become entirely automatic. When the medicine has been given in gradually increasing doses there is subsultus; when a single large dose has been given, convulsions occur.

n. Paralysis of the sphincters of the bladder and rectum.—This is the highest step, beyond which it is not safe to push the physiological experiment. In two patients, who took the dose of 1 and 1½ grs., there were involuntary fæcal discharges. Another patient took a still larger dose, followed by incontinence of urine and involuntary discharges. (*Annal. Univers. di Med.*, 1852.)

7. Grandi administered A. to epileptic patients, in doses gradually increased from gr. $\frac{1}{10}$ to gr. j. The following phenomena were observed:—

a. Dryness of mouth and fauces.—This phenomenon appears at first to be purely nervous, but subsequently the parts become really dry, and then there is diminution of the salivary secretion.

b. Dysphagia.—Difficulty of deglutition immediately follows dryness of the mouth. The patient cannot swallow, except after long efforts of the muscles of the neck and pharynx.

c. Embarrassed utterance from quasi-paralysis of the tongue.—After many days' action of the A. there manifested itself a slowness and

embarrassment of articulation of words, as MM. Bouchardat and Stuart have noted among the principal effects of the solaneæ.

d. Dilatation and subsequent immobility of the pupil.—Mydriasis is one of the earliest and most constant effects of A. It is also the last to disappear, being more or less evident for eight days after the suspension of the malady.

e. Obscurity of vision.—Objects appear at first enveloped in a white vapour; the contours are no longer distinct. The patient is unable to read, to sew. If the dose is increased, almost complete blindness may ensue.

f. Torpor and paralytic tremblings.—In proportion as the doses of A. augment, the limbs, and especially the lower, though still under the influence of the will, become heavy and inactive. If the dose be increased, sensation is lost, and the movements of the muscles are automatic and convulsive.

g. Intellectual confusion.—At first a slowness of intelligence, ideas and replies are imperfect and indifferent. Then comes vertigo, and confusion as of drunkenness.

h. Hallucinations of hearing and sight.—Perceptions of noise, tinkling sound as of bells; distorted countenances of bystanders, extraordinary and gigantic phantoms; the buzzing of insects of black colour, &c.

i. Delirium or stupor.—Upon every occasion when a larger dose than proper of A. is taken, there comes delirium, followed by stupor. The delirium may be of a lively or loquacious character, with forgetfulness of all surrounding objects, with transport and imagination of distant objects, with incoherent actions, movements, and discourse. (*Med. Times and Gaz.*, Jan. 6th, 1855.)

8. Michéa. Since 1855 I have had occasion to employ A., or its most important salts, in the treatment of 42 persons of different age and sex. Almost all these individuals had been, for a longer or shorter time, affected with epilepsy, which was either simple or complicated with aberration of mind. The A., which was almost always employed inwardly, I gave in doses of from half a milligramme (gr. $\frac{1}{130}$) to a centigramme (gr. $\frac{1}{6}$) in 24 h. The latter dose was only tried in a very few cases.

The following are the most important physiological phenomena which I observed:—

a. All the subjects of experiment, without exception, complained on the second or third day after taking the A., even in the smallest doses (as gr. $\frac{1}{68}$ to $\frac{1}{130}$), of unpleasant dryness of mouth, lips, tongue, palate, and throat. This dryness, which was seldom accompanied by actual thirst, and instantly disappeared on moistening the mouth with a gulp of liquid, seemed to be brought on sometimes by simple diminution of the secretion in the mucous lining of the mouth, palate, and throat; sometimes by diminished action of the salivary glands.

b. Soon after the above-named symptoms, there was manifested a more or less considerable enlargement of the pupil, with tendency to immobility of the iris, even when only two milligrammes (gr. $\frac{1}{32}$) had been given. This mydriasis was accompanied by no very remarkable

injury to the sight, as the patients were not prevented from reading very small print.

c. As I gradually raised the dose to 4 or 5 mill., 23 of the subjects of experiment complained of difficulty in swallowing either liquid or solid substances, but especially of the small quantity of saliva which they had in their mouth; frequently they could only effect deglutition after making several strains with the muscles of the neck and throat. Yet the dysphagia did not proceed from a spasmodic contraction of these muscles, as in hysterical or epileptical attacks. They seemed rather to be the consequence of a partially paralysed condition, for none of the patients experienced the constrictive sensation in the gullet which hysterical and many epileptic persons complain of at the beginning of their attack; and, on passing the hand over their throat, one did not perceive the swelling and drawing together which is observed when the muscles of this region are spasmodically contracted.

d. After the dose of 6 mill., I found in 19 cases a failure of voice, which, in one individual, amounted to complete aphonia. At the same time there appeared in 13 a slowness and hesitation in the articulation of certain words. The hindrance to utterance seemed to lie not merely in the muscles of the lips—as is the case, for instance, in paralysis of the facial nerves, where the pronunciation of vowels demanding the co-operation of the lips, such as *o*, and of the labial consonants, such as *b* and *p*, is impeded. In our cases the impediment seemed to lie quite as much in the muscles of the tongue, as I often observed a slight quivering of this organ. This impeded utterance has, moreover, seemed to me to present a great resemblance to that difficulty of pronouncing certain words which characterises the so-called progressive paralysis of the insane.

e. After the dose of 7 mill., all the subjects of experiment complained of dimness of sight, and I found the pupils then regularly in a state of great dilatation. They saw all objects as if involved in a mist, and could no longer distinguish their contour properly; could barely read very large print, could not thread a needle, &c. Twelve persons presented diplopia or slight strabismus, and 6 complained of difficulty of moving the eyeballs.

f. After a dose of 8 mill., 9 out of 16 of the subjects complained that they could no longer so well command their organs of locomotion. They felt at intervals, in spite of strong efforts of the will, a staggering in walking, like that of a drunken man, though not to so marked a degree. They could no longer keep themselves so steady on their legs, nor make use so rapidly and easily of their hands to button their clothes. In a word, they exhibited, in the movement of the upper and lower extremities, a certain heaviness and helplessness, which was very like that which one observes in the first stages of progressive paralysis of the insane. The resemblance between the symptoms which characterise this disorder and the hindrance to movement produced by A. is often so great that, in the commencement, it is very difficult to draw the line.

g. Eight out of 12 subjects of experiment, with whom I proceeded to

a dose of 9 mill., complained of a difficulty of passing urine. Besides, the sensibility of the skin was remarkably diminished; when they were tickled with feathers on the alæ nasi and in the nostrils, or on the commissure of the lips, they hardly seemed to feel it. If they were pricked suddenly, and without being made aware of it, on the skin of the neck, trunk, or extremities with needles, the pain which they felt was much slighter than in the normal condition.

h. Lastly, in six cases of individuals who had been epileptic for a long time, with whom the dose of A. amounted to a centigramme, there appeared, besides the above-mentioned symptoms, a moral and physical apathy; the intellect was beclouded in a way which had a resemblance to the stupor in typhus. These persons seemed to understand with great difficulty the questions put to them; they answered very indifferently and slowly. Notwithstanding, their ideas were still connected and not very obscure; only in a single case there was exhibited a noisy delirium, accompanied with hallucination.

It is important to add this remark, that all these physiological effects, though some of them were of a somewhat alarming nature, never had dangerous results; and that, moreover, soon after the administration of the A. had ceased, they disappeared, excepting the dilatation of the pupils and the dryness of the throat, which often continued still from 6 to 10 days after the discontinuance of the medicine.

From these observations the following general conclusions present themselves:—

(1) A. and its salts act especially on the cerebro-spinal nervous system.

(2) They depress successively, not synchronously, the functions of the different parts of the system.

(3) They affect the motor nervous system before the sensitive, and the organs which minister to the intellectual and moral faculties are those which are last attacked.

(4) The organs on which fall the first convulsive excitations of epilepsy are the same as those which experience the primary effects, in an opposite direction, of atropine. (*Gaz. des. Hôpitaux*, 1861.)

9. A. is, in the truest sense of the word, a diuretic, and more powerful perhaps than any other we possess. After excessive doses in both man and the lower animals, frequent emission of urine is a marked symptom. In medicinal doses the diuretic effect is often masked by retention of the urine; but if that which is excreted during its operation and a few h. afterwards be examined, an increase either in the specific gravity or of the quantity will be observed. In the latter case the specific gravity will, of course, be proportionately diminished. Analysis will show an increased elimination of all the solid constituents, excepting generally the chlorine, which, on account of the increase of the other constituents, appears to be diminished. The urea is always increased and often to a considerable extent; but the effects of the drug are most manifest in the increase of the phosphates and sulphates, which are sometimes doubled. If the action of the medicine take place during a period of fasting, and the maximum acceleration of the pulse be great, and sustained for an h., the urine will resemble that voided

after the digestion of a hearty meal in the richness of its solid constituents. (HARLEY, *op. cit.*)

10. After repeated experiments, I find that in profuse sweating produced by the hot chamber of the Turkish bath, $\frac{1}{100}$th to $\frac{1}{200}$th of a grain of A. will, in a few seconds, completely dry the skin, and maintain it dry, notwithstanding the continuance of the bath.* (RINGER, *op. cit.*)

11. In the Pennsylvania Hospital I not long since saw a man who had been wounded by a railroad accident in such a way that the whole of the temporal bone anterior to the petrous portion was thrust into the side of the head; there was complete paralysis of the facial, of the trigeminus, and of the oculo-motor, as could be readily demonstrated on the man, who lived some months, finally dying from abscess of the brain. The carotid canal was so pressed upon that the sympathetic, which passed upwards through it to the eye, must also have been paralysed. The eye was, as found by the autopsy, separated from all connexion with the nerve-centres, and yet when A. was given hypodermically the pupils dilated. The proof seemed complete that the mydriasis was due to a peripheral action.† (H. C. WOOD, *op. cit.*)

III. *Experiments on animals.*—1. *a.* A grey horse received gr. $\frac{1}{4}$ by hypodermic injection. Pulse was 30. In 12 m. pupils suddenly and completely dilated as they were being examined; pulse at same time obtained its maximum acceleration, 72; mouth was drying. In 20 m. pulse 68, soft and full; mouth only dryish. In 1 h. pulse of same rate, but of diminished volume and very soft; lips, mouth, and tongue quite dry; remained very quiet and dull. After 3 h. considerable nervousness. After 6 h. pulse so weak and compressible that it was counted with difficulty; pupils fully dilated, and a bright red glare was reflected from the fundus of the eye, conjunctiva of bright crimson colour; mouth moistened with creamy secretion; tongue white. For an h. previously the horse had been restless, and now there was a moderate amount of delirium; a touch made the muscles quiver, and he was startled by the least noise, and jerked the head backwards on moving, as if he misjudged distances. During the next 4 h. the effect gradually wore off. At 18th h. pulse was 36 (6 more than before injection), very soft and weak; mouth and pupils normal; had passed a softer and more copious stool than usual, strongly acid; was tired and gapey. Urine frequently voided during action of dose.

b. A brown bitch, weighing about 25 lb., pulse 120, received gr. $\frac{1}{6}$ subcutaneously. After 7 m., pulse 224, regular; after 9 m., pupils completely dilated and fixed; nose, mouth, and tongue quite dry.

* Experiments indicate the existence of sweat-centres in the cord and medulla; and it has been demonstrated that the sweat-fibres run with the vaso-motor fibres. Pilocarpine and muscarine excite sweating by action on the periphery of the sweat apparatus; and atropia checks it, as it does the salivary secretion, by an influence exerted on the same parts. (RINGER.)

† Our knowledge of the action of A. on the pupil may be summed up as follows: A. applied locally causes mydriasis by paralysing the peripheral ends of the oculo-motor nerve, and probably by stimulating the peripheral ends of the sympathetic. A. given internally *almost* certainly causes mydriasis, not by influencing the nerve-centres, but by being carried in the blood to the eye itself, and there acting precisely as when applied locally. (H. C. WOOD.)

After 27 m. had lost much of her playfulness, and began prying slowly about room, now and then stumbling from unsteadiness of hind legs. After 1 h. continued in same state; consciousness unimpaired; was partially blind and went about cautiously, walked awkwardly, and hesitated to jump off a chair. Pulse between 300 and 400; respiration 22, regular. She now lay down for the first time, closed eyes, and dozed for 10 m.; then got up and walked about as before, smelling her way rather than seeing it. After 1½ h., heart beating with noise and rapidity of a winnowing machine, about 400 times a minute, each beat distinctly perceptible through chest wall. Walked stiffly and clumsily; when placed upon a shifting ground, such as a cushioned chair, she reeled very much, and could hardly keep her footing, and when called she walked straight into the air, and tumbled down. Then, when called again, she came in the direction of my voice, hesitatingly and with groping movement, as if advancing in the dark. After 3 h., pulse as before, strong, regular, 250; respirations 18, interrupted at intervals by a long-drawn sigh. After 5 h., pulse 200, quite regular and strong. After 5½ h., mouth moistening. After 6 h., pulse still 200 to 190; mouth moist; had recovered some activity, and came up when called, but when placed on the table walked off into the air, and fell down. After 7 h. took food, had recovered activity and sight, and was quite frolicsome. (HARLEY, *op. cit.*, 196, 199.)

2. Wharton Jones, Meuriot, T. Harley and others state (though Nunneley denies it) that when applied to the web of the frog's foot belladonna contracts the smaller arteries, producing at first acceleration of the circulation, followed after a time by complete stasis, beginning, according to Meuriot, in the veins and capillaries, the circulation always continuing in the artery some time after it has completely ceased in the vein. According to Harley, a moderate dose contracts the arteries, whilst a large dose dilates them; the contraction being due to stimulation, and the dilatation to exhaustion of the sympathetic system resulting from its previous over-stimulation. (RINGER, *op. cit.*)

3. To briefly sum up the probable action of A. (as ascertained mainly by experiments on animals) we find that:—

a. It tetanises the cord and heightens its reflex action.

b. It stimulates the respiratory centre, the inhibitory centre of the heart, the cardiac accelerator nerve or its centre, and the vaso-motor centre (so heightening arterial pressure).

c. It paralyses the terminations of the vagi, both in the heart and lungs; of the secretory nerves of the salivary, and perhaps also of the sweat-glands; and of the inhibitory fibres of the splanchnics.

d. Large doses slightly depress the functions of the afferent nerves.

It appears, then, that while it acts as a stimulant to a large part of the central nervous system, to many of the nerves it operates as a paralyser. (*Ibid.*)

4. *a.* In a frog the primary stimulation quickly passes off, and there follows gradually increasing weakness both of respiratory and voluntary movements, until these are entirely abolished. The nervous trunks cease to respond to stimulation, and the only sign of vitality is an occasional and hardly perceptible beat of the heart, and retention of

irritability in the striated muscles. But if kept in this condition 4 or 5 d. the apparent death is succeeded by a state of spinal excitement. The forearms pass from a state of complete flaccidity to one of rigid tonic contraction. The respiratory movements reappeared, the cardiac action became stronger, and the posterior extremities extended. In this condition a touch on the skin caused violent tetanus, usually opisthotonic, lasting from 2 to 16 seconds, and succeeded by a series of clonic spasms. A little later still the convulsions change their character, and become emprosthotonic. These symptoms are due to the action of the poison on the cord itself, for they continue independently in the parts connected with each segment of the cord when it has been divided.

Fraser, who first observed these phenomena, considered the paralysis due entirely to the action of the drug on the extremities of the motor nerves, the cord being stimulated throughout. Ringer and Murrell, however, have found that when the ends of the motor nerves in one leg are protected from the action of the poison by ligature of the artery, there is no difference between it and the poisoned leg, whereas on Fraser's hypothesis it ought to be in a state of violent spasm. Brunton explains the facts by the theory of interference between nerve-vibrations.*

b. The motor nerves of involuntary muscular fibre appear to be affected by A. and its congeners in a similar way to those of voluntary muscular fibre by curare—small doses of A. paralysing the former, and only large doses the latter, while the converse is the case with curare. These effects are usually supposed to be due to a definite paralytic action on the nerves themselves. There are difficulties, however, in the way of this hypothesis, and a more probable one, perhaps, is that these drugs disturb the relations between the nerves and the muscular fibres which they excite. On the idea of a specific action it seems hard to explain the results obtained by Szpilman and Luchsinger, who found that A. produced paralysis of the motor fibres of the vagi supplying the œsophagus only in those parts of it where involuntary fibre is present. Thus the œsophagus of the frog and the crop of birds consist of involuntary muscular fibre, and A. destroys the motor power of the vagus over them. The œsophagus of the dog and rabbit contains striated muscular fibre, and A. does not paralyse its motor nerves. That of the cat contains striated fibre in its upper three fourths and non-striated in its lower fourth; A. destroys the motor action of the vagus upon the upper part, but not upon the lower fourth.†

c. The action of A. on the excised heart of the frog illustrates the dependence of contradictory statements on differences in the temperature at which the observations were made. Thus Bowditch and Luciani found that the contractions, both of the frog's heart containing ganglia and of the apex alone, were rendered more powerful by A., while Gnauck, on the contrary, found that the contractions of the ventricle were diminished by it. Kronecker and Schapiro have found that these contradictory observations are both correct, but at different tem-

* Ringer and Murrell consider paralysis and tetanus to be merely successive forms of spinal depression, and that with A. the latter is more slowly induced than the former.—Eds.

† So stated by Brunton; but converse is needed to substantiate his position.—Eds.

peratures. When the temperature is low (7° to 8° C.) the ventricular contractions are enhanced by A., but diminished by it when the temperature rises above 15° C.

d. A. paralyses the secreting fibres of the chorda tympani without affecting the vaso-dilator fibres, so that when the nerve is stimulated, either directly or reflexly, the flow of blood to the gland is increased, but no fluid exudes from the duct. That this absence of secretion is due to paralysis of secretory nerves and not of the secreting cells appears to be shown by the fact that at the time when the power of the chorda to induce secretion is completely paralysed, stimulation of the sympathetic will still induce secretion. A. probably has a similar action on many, if not all, glands, including the sweat, milk, and mucous glands, the pancreas, and the liver. It does not, however, prevent secretion in the intestine after division of the intestinal nerves. The secretion of urine is sometimes increased.

e. Small doses increase the movements of the intestines. This action is probably due to paralysis of the inhibitory fibres of the splanchnic, since stimulation of the fibres of the peripheral end of the cut splanchnic will cause arrest of movement in the unpoisoned, but not in the poisoned animal. Moderate doses completely arrest peristaltic movement, but the muscular fibres of the intestine retain their irritability. Local irritation causes a local contraction but no peristalsis. This is probably due to paralysis of the intestinal ganglia. Large doses stop the movements and paralyse the involuntary muscular fibres of the intestine, so that they only contract feebly or not at all when directly irritated.

f. A. greatly increases the tendency to epileptic convulsions in dogs, so that they can be produced by much slighter stimulation than usual, strychnine, absinthe, and cannabine having a similar, and bromide of potassium an opposite effect.

g. A large number of drugs, more particularly A., curare, coniine, and nicotine, when injected into the circulation, have the power of completely destroying the inhibitory influence of the vagi so far as the rate of rhythm is concerned, so that when their fibres are stimulated the heart is not arrested, nor are its beats rendered slower, but they are, on the contrary, quickened. A. and its congeners, moreover, prevent any inhibition occurring when the venous sinus is stimulated, or when muscarine is applied directly to the heart. On the vagus centre, however, the drug acts as a stimulant, this being evidenced by slowing of the pulse disappearing after section of the nerves. (BRUNTON, *Pharm. and Ther.*).

BELLIS.

Bellis perennis, L. English daisy. Nat. Ord., *Compositæ*.

I. *Provings.*—1. *a.* After taking the medicine in 20 dr. doses of the pure tincture for 14 d. without any symptoms, I suspended the use of it. In two weeks after leaving it off, for the first time in my life I had a large boil on the back of my neck (r. side), commencing with dull aching pain; some difficulty and bruised pain in keeping head erect; slight nausea, want of appetite, and a little giddiness in head at times. Boil,

beginning Dec. 7th, increased with burning pain, until in 6 d. time it was very large, of dark, fiery purple colour, very sore, burning, and aching, accompanied with cold aching from occiput to sinciput, brain in frontal region as though contracted. On 11th had pain in middle finger of l. hand as of a gathering, for short time only, and at same time pain in inner side of l. forearm, as of a boil developing; two d. before similar pains in corresponding parts of r. arm. Three d. after boil got well another made its appearance, but yielded speedily.

b. On Jan. 12th, feeling my l. foot somewhat strained after running, I applied tinct., which for several d. aggravated the feeling; and in 5 d. after the application I had another small botl. On March 7th I chewed some daisy flowers; and on 11th a small boil appeared at angle of r. lower jaw. The last trial I made with the 3rd dil., taking 3 drs. on Sunday, March 2nd, in next year. On the following Friday a small pimple appeared a little behind angle of l. lower jaw; it increased very much in size and pain by Saturday, when I treated it with bellad. ϕ externally, to which it soon yielded.

As at no other time in my life have I suffered from boils, I am inclined to think that these were due to the use of the daisy. (Dr. H. THOMAS, *Brit. Journ. of Hom.*, xvi, 325.)

2. *a.* ——, male adult, proved tinct. in 1880, being in sound health. March 6th, took 10 dr. in water at bedtime, and repeated dose 4 times next d. After each of latter series, had sense of gurgling and even stabbing in l. hypochondrium, followed by creeping and beating in l. temple Slept heavily and dreamt strange incoherent dreams, all muddled together. After lying in bed in morning on back, pressure on splenic region causes pain, and there is sense of fulness there; tongue slightly yellow. Distension in l. hypochondrium is felt during d., more painful after meals; it seems to extend up to diaphragm, and at each inspiration there is "rubbing" feeling there. At 5 p.m. took 13 dr. Stitches are now added to symptoms of l. side, with drowsiness and some lassitude. The eyes now feel affected, and in l. there is twitching, jerking sensation as when sparks are taken by an electric machine. That e. and next d. stitches continued, aggravated by slightest movement; shifting pains across epigastrium and round navel; pulse irregular; heart's action at times fluttering, feelings as of impending suffocation. On 10th took none. On 11th took 15 dr. before going to bed, with usual sensation in spleen. On 12th, at 1.10 p.m., repeated, and felt also throbbing pain in l. temple and increased action of heart. At 11.30 p.m. repeated, without fresh symptoms. On 13th, at 7.10 a.m., repeated. Lining of nose now begins to get very sensitive and sore, and scabs begin to form in nostrils. Region of spleen becomes sorer and sorer, so that difficulty is felt in stooping. Repeated dose at 11.30 p.m. On 14th took 15 dr. at 8.15 a.m. and 10 dr. at 5 and 10.30 p.m. Former caused griping pains at pit of stomach, and tongue became coated with brownish fur. After last dose symptoms got worse, felt nearly "off his balance;" on lying down nausea and swimming in head as if on board ship. On 15th, nostrils getting worse, especially l.; cannot use handkerchief. Did not take dose in m., nausea being too great; took it at 1 p.m., when action is always felt best; and had twitching of eyes, especially l., and enlargement of small veins of l. temple. Itching of anus was now felt, and sense of heat within rectum; sphincter seems less elastic than usual. Several pimples are coming out on face and neck, which is unprecedented with him; there is a large and troublesome scab on nucha; itchiness of head is great, and glands of neck are tight and sore. Took 10 dr. at bedtime. 16th.—Sleep heavy but dreamless. At 1.10 p.m., 15 dr. Old sensation in spleen is set going with fresh vigour, splenic region is tight as a drum. For first time felt action on brain, like that of alcohol. Twitching of eyes continues; conjunctiva dry for a time, then profuse lachrymation, finally agglutination, especially on l. side. On next 3 d. took two doses daily, symptoms growing worse and worse, spirits continuing good. Brain getting muddled, in excellent spirits, but is repeatedly gan[illegible] he is under the influence of "something stronger than tea." Eyes are said to while [illegible] fearfully and standing out; looks haggard and careworn. Fæces becoming tricle were [illegible] these contrac[illegible]ing now till 23rd, when he began with 10 dr. at 9 a.m. Giddiness, [illegible]on in region of cerebellum. Repeated dose at 1 p.m., and had

* Ringer and M[illegible], worse than before. A patch on l. leg, made sore 18 months [illegible] forms of spinal depre[illegible]ow became tender and pimply. Dreams again strangely inco- [illegible] the former.—EDS. [illegible]g n. Soreness at anus has all but disappeared, but nasal

† So stated by Brun[illegible] involving lining of upper lip. Cannot bear to twist mous-

tache. Strange shivering sensations crept over him; felt uncertain; sight dim, stars look double and through telescope seem dancing; heart flutters; is quite out of sorts, and out of patience with everybody and everything. (In letter written to Dr. Burnett on this d. he describes his mind as getting confused, his memory weak, thoughts jumbled, talk incoherent; and states that the splenic region has become large, the false ribs as it were forced out, with stitches there.) Slept very heavily, found temperature 96° only; pulse 50, irregular; evacuations had been growing lighter, and were now ochre-coloured. Tongue coated with yellowish fur. At 9 a.m. 10 dr., and at 1 p.m. 15 dr. Excessive occipital headache all afternoon; eyes heavy; drowsiness. 25th.—Sensation in l. side growing very acute. After 15 dr. in morning very heavy and stupid during rest of d. Is laughed at for asking one question ever so often. Annular ligaments of wrist, especially l., feel contracted, as if elastic band were round joints. Being on point of vomiting, took none on 26th. Resumed proving on 27th, with diminished quantity. On 28th, blotches on l. cheek and chin, like "barbers' itch." 29th.—Spirits getting dull; cannot tolerate noise, music disagreeable. 30th.—"Capsized;" brain muddled; shooting pains along l. leg; distaste for food. Abandoned proving, but it was a month ere he recovered from its effects.* (BURNETT, *Hom. World*, April, 1884.)

3. Dr. LLOYD TUCKEY took nearly ʒj of tinct., in varying doses, without effect. (*Ibid.*)

4. Miss C. C—, a very healthy but sensitive maiden lady between 30 and 40, took 1st dil., a few drops daily, and attributed following symptoms to its use:—Languor, feels ill all over; burning heat, externally and internally, at n.; soreness and aching of chest; bleeding repeatedly from nose, and once from mouth; flatulence; dryness of mouth; sleeplessness. (*Ibid.*)

5. "I have myself twice made short provings of Bellis, but have lost my notes. It acted laxatively with me, and produced many little boils with mattery heads." (*Ibid.*)

BERBERIS.

Including *B. aquifolium*, the holly-leaved barberry, and *B. vulgaris*, L., the common barberry. Nat. Ord., *Berberidaceæ*.

I. *Provings.*—1. Dr. WINTERBURN proved B. aquifolium, in 1879, on 2 male and 3 female students; in 1880 on 4 of the former and 2 of the latter. Five of these took twice a day 10 dr. of fluid extract for two weeks, and then ʒj daily for a week.† The other 6 took drug on different scales of increase, only one taking largest dose mentioned. The following summary is given of the results obtained:

a. Mental condition showed unhappiness and depression, sometimes coming on suddenly (without cause), and sometimes amounting to anguish; hysterical crying at frequent intervals; nervousness and restlessness; disinclination to move, or do anything; dull, stupid feeling; drowsiness in daytime. The mental symptoms appeared usually on 2nd d., continued throughout proving, and for several d. subsequently; they affected all the provers.

b. Head.—Dizzy sensation, worse when sleeping or moving; pain on right side, pressing like a weight; pain in r. temple, running down into teeth. The pains were transitory and recurring, and disappeared in later part of proving. The dizzy sensation was part of the general biliousness caused by the drug.

c. Eyes.—Sensation as of a film before them; they look hollow and weak, as if tired, feeling also burning and aching, as from strain—in one case sense of weakness

* Prover adds that gums and mucous lining of throat were much affected, and looked dark red, requiring kali bich. to restore them. He describes himself while under influence of B. as "happy as a king, feeling he was doing strange things, but could not help it; friends with everybody."

† In original report of these provings Dr. Winterburn speaks of the doses as being "from ten drops to three ounces," and of the experiments extending over "about three months (? weeks)." The statement above is from his later paper.—EDS.

lasting for several weeks after termination of proving. In three provers lower palpebral conjunctiva was very decidedly injected.

d. Nose.—Stuffy feeling, with discharge of greenish-yellow mucus; itching within nose, with desire to sneeze.

e. Face.—Blotches and pimples; yellow skin; flashes of heat in cheeks; pinched expression.

f. Mouth.—Bilious taste after eating; thickly-coated tongue, either yellow-brown or pasty-white; tongue feels as if, or actually is, blistered; soreness in lower teeth and in salivary glands; dry throat. The bilious coating of tongue dated from 2nd or 3rd d., blistering from end of 2nd week; dry throat occurred during 3rd week.

g. Stomach.—Hunger, even soon after eating, without desire for food; sudden nausea after eating; burning in stomach and borborygmi,—these were noticed from first; during second week there were cramps, and no appetite.

h. Abdomen.—Uneasy feeling, without desire for stool; pain in hypogastrium. No direct sensations were felt in liver, but biliousness was a marked feature in all provers, and two showed a peculiar waxy look like beginning of jaundice. Upon the spleen B. a. has a very positive action, causing intense burning and a feeling as if it had been pounded. The burning was very marked in all provers, commencing about 7th or 8th day, and persisting until drug was discontinued, producing a soreness of which all complained bitterly.

i. Stool.—All had large, free, dark movements on beginning medicine, one had hot bilious diarrhœa. This was followed by light-coloured, varnished, constipated stools. Subsequently stool became soft and natural in quantity and colour, but too large, and expelled with great difficulty.

j. Urinary organs.—It had a manifest effect on kidneys of all provers, increasing in some and decreasing in others amount of urine voided. No change in appearance of urine was noted, and no analyses were made.

k. Generative organs.—Drawing and pressure in testicles, slight burning in vagina, bearing-down pains, and aching as if menses were about to come on.

l. Respiratory organs.—On either 3rd or 4th d. each of the provers had what seemed like a "bilious cold,"—throat choked with mucus, voice rough and somewhat hoarse, expectoration yellow and then greenish. Throat was not relaxed, prover could sing *in tune* and without fatigue, but voice sounded muffled, as if a damper had been closed on larynx. This condition developed by 4th week into a most interesting condition. The peculiar lack of *timbre* in the voice; the oppression and weakness of the upper part of the chest (as also burning heat in lower l. lung); the dry, irritative cough; the scanty, tenacious, blood-streaked expectoration; the pinched expression; the previous gastric disturbance and present languor and debility; the accelerated pulse and heightened temperature, gave a startlingly vivid picture of phthisis pulmonalis.

m. Extremities.—When limbs were perfectly still they were free from pain, though sometimes there was a feeling of numbness and a sense as if there was not strength of will to lift the part. On movement there was cramp (in legs), trembling and uncertainty of motion, and pain. The latter was sometimes severe, and resembled that following a heavy blow. One prover noticed, for several weeks after discontinuing the medicine, a peculiar prickling, as from electricity, on back of hand and outside of forearm, lasting only momentarily, but returning frequently, and seemingly independent of occupation, position, or time of day. Flashes of heat and burning of palms also were noted by one, and rheumatic tension and stiffness of legs by another.

n. Circulation.—Diurnal rise of temperature and pulse-rate (15-20 beats) during 4th to 6th week of proving.

o. Weak under the feeling, better for exercise. (*N. Y. Med. Times*, Oct., 1879, and *North Amer*fully and st*Hom.*, May, 1884.)

2. (Report o ale provers.) "In June I began to 'prove' the medicine for you. I had reng now till 23the rheumatism,* and was in good health and spirits. The only bad symjon in region g from the slight illness I had had was highly

M, worse than b

* This was in r. resow became tend while B. a. was being taken, but in conjunction with *yerba rheum* g n. Soreness at then recorded cannot be allowed here. —Eds.

n involving lining of up

coloured urine, with red sediment. The first d. I took ʒvj—one teaspoonful before breakfast, four teaspoonfuls, one hour apart, after breakfast. The effect was four movements of the bowels during the m., fæces large, loose, shining as if varnished, dark greenish-brown in colour. I had considerable nausea after each dose, and burning in stomach; but after effects had passed away (shortly after last dose) felt stronger and more energetic than usual. The next d. I doubled the doses, taking ʒxij in the same space of time. It caused nausea, even to vomiting, and my bowels were constipated; no motion at all during d. I continued to take it, but only ʒx a d., for several d. The bilious symptoms were from the first the marked ones; bitter taste in mouth, yellowish, pasty tongue, bilious breath, burning in stomach and region of spleen, the latter daily for several d. The 3rd or 4th d. I had what seemed like a bilious cold, choked with mucus, voice rough and slightly hoarse; the secretion was yellow, even greenish at one time. My throat was not relaxed, but voice seemed *cut off*, as if a damper was closed; I felt as if my lungs were weak. About the 3rd or 4th d., I had, just before rising, a severe cramp in calf of l. leg, and the following m. slight cramps in both legs, and a momentary paralysis of r. foot. A very great depression of spirits during the greater part of the time that I was taking the medicine in these large doses existed, but at the same time I felt a tonic effect from it. I had a great deal of transitory headache on r. side of front of head, and sometimes the pains would pass down into r. jaw; my tongue and gums were a little sore several times, and at last I had slight soreness of the salivary glands on pressure. Urine diminished in quantity from 1st d., and soon became clear and of light sherry colour, without the least sediment. Had rheumatic pains at various times, but although the weather was favourable to another attack, I did not have it, the pains being wandering and passing away. I took no medicine at all for several d., during which time secretion in throat and chest symptoms improved; bowels continued constipated, but I felt well, and think I felt withdrawal of medicine less than I do now. Urine did not increase in quantity, and remained clear. Then I took ʒiv a d. in four ounces of water, a dose every fifteen minutes. Precisely the same symptoms were set up gradually, with addition of eyes troubling me; sight was weak and eyes slightly bloodshot, with some congestion in under eyelid. I felt a stronger tonic effect from these smaller doses than I did while using it in the larger doses. I think the effects have lasted longer than then. I have taken none for 9 d., and feel the want of the tonic. I have suffered from depression of spirits, headache, various bilious symptoms, burning in spleen, variable appetite, at times very little, at others hungry, dyspepsia. I am paler, with less colour by far in lips than while taking the B. During the time I was taking it in the largest doses, I looked for a day or two waxy, yellow-white—and I had blue rings under my eyes nearly all the time. I think my skin looks clearer and is softer and with fewer blotches than before using it. About the 3rd or 4th d. after discontinuing it, I had a very severe pain in l. side—neuralgic—quickly passing away. During its use I had one rheumatic pain of a different nature from the pains I have had hitherto; my r. hand and wrist felt as if stunned by a blow, or as if a heavy weight was on it. This lasted about half a d. To-day (20th) I have felt in better spirits, have had some slight rheumatic pains, no movement of bowels, good appetite, skin clear, slight headache this afternoon. (*Ibid.*)

3. Hesse proved B. vulgaris in substance on himself, a man, and three women. He took on 13th March an infusion of ℥ss of root, and repeated dose on 14th. The other man took on April 4th 48 gr. of powdered bark of root, and on 11th an infusion of ʒiij and on 15th a decoction of ʒvj of root. The first woman took on 23rd April last-named decoction; the second on 15th and 27th March infusions of ℥ss and ʒvj respectively; the third, an extract of ℥j of the decorticated root on 21st and of ʒvj of root on 26th March, and ʒss of powdered bark of root on 28th April.

[As results of these 11 doses a list of 1212 symptoms is given, without reference to their distinctive subjects, many of them without note of time of appearance, and this, when stated, sometimes given as 3, 6, or 9 months after ingestion of medicine. Under these circumstances, it has been thought well to select for full statement only noteworthy symptoms specified as occurring within a reasonable time.—Eds.]

a. Mind.—One of the female provers experienced on 2nd and 3rd d. remarkable melancholy and disinclination to speak, which she could in no way overcome, with a quiet (not sensual) longing.

b. Head.—Vertigo; confusion; sense of intoxication, of tension, of distension and

enlargement; headache, pressive, stitching, or both, chiefly in forehead and temples, aggravated (as is also distension and giddiness) by stooping, and better in open air; tense, puffy, and numb sensation in integuments of head and face. Special symptoms were—heavy, pressive headache, with great weariness and prostration (3rd d.); frontal pain, stitching, paroxysmal, lasting ½ to 3 m., especially shooting suddenly through supra-orbital region (1½ h.—10 h.); stitching, shooting, or also twitching or rolling pain at several points in l. frontal region, about an inch above margin of orbit, extending outward and upward (3 h.).

c. Eyes.—Dryness, and biting or burning, and sometimes also an itching sensation, often with feeling as if sand were between lids and ball, at times with slight conjunctival redness of both; this symptom appeared early in proving, and lasted with intermissions throughout. Painfulness, stiffness, pressure, and throbbing were other sensations experienced; most of the troubles were aggravated in open air, and moving eyes increased their painfulness. Tearing and stitches were felt in orbital margins.

d. Ears.—Great heat in l. outer ear, then after 1½ h. great coldness of same and of temple (8 h.); stitches in both ears.

e. Nose.—Mucous membrane of nose seemed in most provers dry, with little discharge; in one, however, later on a coryza, lasting some months, appeared in l. nostril, and apparently involved frontal and maxillary sinuses; at first of yellowish water, smelling as if burnt, afterwards purulent, sometimes whitish, sometimes yellowish or greenish, mucus, also smelling (and tasting) as if burnt, was blown from nose, and hawked up, especially in m., but not in great quantity.

f. Face.—In those much affected by drug remarkable paleness of face with dirty-greyish appearance, sunken cheeks, deeply-seated eyes surrounded by bluish or blackish-grey circles, with very sickly expression, for a long time. Tearing stitching pain in r. cheek, shooting by jerks into temples, for several m. (2½ h.).

g. Mouth.—Stitches in some molars, with feeling as if they were too long (2 h.); fine stitches in tongue, especially r. (2nd d.); dryness and sticky sensation in mouth of all provers.

h. Throat.—After 4 h. scraping sensation as in commencing angina, compelling to hawk and raise frequently, without difficulty in swallowing, for several h.; after 11 h., dryness and pressure; on 2nd and 3rd d. arches of palate, uvula, tonsils and pharynx are somewhat red; from 5th to 7th d. pain in l. tonsil, caused or increased by speaking and swallowing, with sensation as if seed of a fruit were sticking there, parts are red, and sensitive to external pressure.

i. Stomach.—In most provers increased appetite at first, and in several thirst also.

j. Abdomen.—After 15 m., violent sticking pain for ¼ h. in hepatic region, and same in region of gall-bladder frequently in more than one prover; much working in bowels, with some griping, in most cases. About 10 p.m. on 4th d. violent and sharp pain in upper abdomen (in front of kidneys), extending upwards to l., very much increased by breathing, motion, and touch, respiration therewith short and belly distended and hard; pains return next m. on standing erect, and recur from time to time, but are less severe. The inguinal regions are the seat of much pain, generally sharp, the glands there became tender in one case (3rd d.), and in another varicose veins appeared.

k. Rectum and Stool.—Anus was seat of much heat, fulness, and sometimes pain; during 2nd and 3rd weeks in one prover hæmorrhoids frequently appeared, with pain at stool and some blood (it is not said whether this was new to its subject). The large doses purged gently, constipation ensuing.

l. Urinary organs.—Sharp pains passing from one part of urinary tract to another were very common; and urethra was frequently seat of burning and cutting, even independently of passage of urine. Three provers had pressive pain in region of bladder, whether full or empty. Urine was sometimes diminished, sometimes increased; when copious, of light colour, clear, or only with a little mucus, which does not always deposit, when scanty, turbid, flocculent, like clayey water, throwing down a mucous sediment, mixed with a white or whitish-grey, and later a red, meal; former condition obtained at commencement and during aggravations, the latter during reaction from medicine. This is the general account to be given, but there was variation even on single d.; urine was nearly always cloudy in m.; pains in loins usually accompanied its morbid conditions. One prover had blood-red urine,

speedily becoming turbid and depositing a thick mucous and bright-red mealy sediment,* slowly becoming clear, but always retaining its blood-red colour; with violent pains in kidneys.

m. Sexual organs.—Frequent erections (1st d.); menstruation became shorter and scantier, also more painful, on 1st and 2nd occasions after taking drug. The following statement of after-results must be taken for what it is worth. "In the fourth return menstruation occurred one d. too soon; discharge was greyish mucus, then bloody; scanty. The 5th period omitted entirely; on the 6th some watery blood passed; then until the 8th inclusive greyish mucus; for some d. previous to it violent tearing in limbs, with severe sacral (sometimes one-sided) pain, as if broken and sore, almost as in labour, so that she could not lie on it; sometimes also pain in one hip-bone; dragging pain in thighs, extending to calves, especially in veins, which are distended with blood; also pain in lumbar region; once in e. in bed violent shooting on l. side of abdomen near navel, extending in long stitches into l. side of vagina; fretful mood, as tired of life; smarting pain in vagina, also violent burning and feeling of soreness in anus; pressive pain in upper arm and shoulder, extending into neck."

n. Respiratory organs.—Feels raw in chest as from catarrh, and an habitual occasional expectoration is increased (2nd to 6th d.).

o. Neck and Back.—Lightning-like sharp stitches as it were jump up from r. clavicle along r. neck (4th d.). Violent shooting cutting tearings on l. side of neck in muscles near axis, lasting several m., with painful stiffness of neck, so that he is not able to move head (3rd d.). Suddenly when leaning against arm of a chair a violent deep-seated pain running from point of scapula to shoulder-joint, and thence down inner side of arm to elbow; parts seem bruised, swollen or ulcerated, shoulder-joint feels as if sprained; on raising arms sensation extends into chest and arrests breathing; pain often extends to r. neck, is relieved in rest, pressure and movement increase or excite it anew; upper arm pains deep in bone, as if something were alive there; on 2nd d. chilliness in affected part, extending down to renal region, with goose-flesh (3rd to 8th d.). Tensive shooting pain from lower dorsal to lumbar vertebræ (2nd d.). Twinging pain in sacrum with desire for stool (1st d.).

p. Extremities.—Pain in l. shoulder, especially deep in joint in front, as if in head of humerus, and as if parts were swollen, especially when moving arms backwards, and also on pressure, lasting several h. (5th d.). Tearing in l. shoulder, extending across whole scapula and down back, especially on motion, for several d. (6th d.). Sensation as if cold drops of rain fell on back of hand when she went from house into open air (7th d.). Sensation of weakness, and as if bruised, in lower extremities, sometimes with heaviness and stiffness, also paralysed feeling, as after a long march or as if parts were strained, and muscles were too thick; chiefly in soft parts, but also not seldom in bones, with pains which are readily excited (though not always aggravated) by motion. This occurred through nearly whole time of proving, sometimes worse, sometimes better.

q. Fever.—In first hours, some heat in head and face, or over whole body; on 2nd d. chilliness over whole body, so that she shivers, followed by heat, for a few m.; on 3rd d. rapidly creeping chills, even shiverings in various parts, chiefly beginning in face and arms and extending over back and chest, followed by heat, with anxiety and oppression at chest, especially in forenoon and e.; the heat was so violent, that she felt she must spring into water.

r. After 6—10 h. general prostration, so that she had no desire to do anything. Great fatigue in e., he goes to bed 2 h. sooner than usual, and falls asleep with unwonted rapidity. (*Journ. f. hom. Arzneimittellehre*, i, 1.)

4. One of the women, after the action of the large doses had ceased for 8 d., took a drop of the 5th dil. of the tinct., and found many of the former symptoms return in redoubled force, extension and duration. (*Ibid.*)

5. The second male prover, all his symptoms having disappeared by April 27th, took on that d. a drop of the same. He felt in hepatic region at border of the ribs three inches from linea alba shooting pain extending to gastric region, increased by pressure, that lasted ¼ h. It came on while walking. (He had the same symptom

* With this in one case there were yellowish-red crystals.

after 48 grs. of the powdered bark). Next d. had a rheumatic laming pain in shoulder and some shoots over l. eye. (*Ibid.*)

6. A girl, æt. 18, got from 11th Feb., daily at noon, from 25 to 30 and 40 dr. a tincture made of 30 dr. of 6th dil. with 1 oz. water. Soon scraping in thro relieved by drinking water. Woke at night with intense thirst.—12th. On risi tearing pain in both renal regions, which extended sideways, forwards, up and dow involving the whole back between thorax and pelvis. On stooping and when seat the lower part of back felt stiff. Pressure in both eyes and pain when they are mov with heat and burning in them, conjunctivæ of border of lids very red, also the sclero partially. Pressive headache, as though the head would burst, or as if it was pres down by a heavy weight, heat of head, dryness of nose and feeling as if she w taking cold, with frequent sneezing. The conjunctivitis much increased towa afternoon. The conjunctiva bright and uniformly red; great burning in eyes a pain especially when moving them. Could not see to sew as everything ran togeth Light dazzles. Eyes quite dry. In afternoon great itching in skin of knees a thighs, scratching relieved transiently.—13th. State much the same. Urine with mu mucous sediment.—15th. After supper pressive sensations in stomach, as though would burst. No stool for 2 d. Several times during d. violent burning, scrapin itching in r. cheek from ear down to lower jaw.—16th. Great weight, transient feeli of weakness in lower limbs, especially thighs, felt most when going upstairs, a great weariness. All symptoms aggravated in afternoon. (*Ibid.*)

7. A girl, æt. 14, who has not menstruated, got 25th Feb., at bedtime, 10 dr. the 6 dil., 26th, m. and e. 10 dr., 27th, 10 dr. m., 28th to 1st March, each d. doses of 10 dr. On 26th pain in abdomen, m. in bed; at 8 a.m. bitter taste.—27t Aching pressing headache, great weariness and prostration.—28th. Afternoon, repeat cutting in abdomen as though diarrhœa would come on.—1st March, m. and afternoo diarrhœa. (*Ibid.*)

8. A girl, æt. 19, got from 24th Feb. to 5th March, at first 15 rising to 40 dr. 6th dil., every day one or two doses.—24th. Pressive headache, as though forehea would be pushed out. From noon, burning in eyes, eyelids red on their inner surfac and white foam on their borders; headache as though skull would burst, o stooping feeling as of wobbling in head, and as if all would come out at forehea sometimes twitching tearing in temples; twice diarrhœic stools.—26th. Headach continues, but not so severe; sometimes chilly feeling, especially on coming from war to cold: stuffy, pæsty, burnt feeling in mouth and throat. Afternoon and e. ey burnt like fire and were quite dry. When sewing blackness before eyes; daylight an lamplight dazzle.—27th and 28th. Eye symptoms continue; eyelids inflamed an swollen, especially l.—1st March. Tearing in l. shoulder, all over scapula, down back especially on moving; this lasts several days.—3rd to 5th. Diarrhœa with cutting or 4 times a d. The eyes, which were better from the 3rd, became worse. Next d all symptoms gone. (*Ibid.*)

Berberinum.—An alkaloid contained in berberis vulgaris, hydrastis, and som other plants.

I. *Provings.*—1. A nurse, æt. 40, complained of some hæmorrhoidal symptom chiefly itching and burning in arms, otherwise health good. She got from 3rd t 6th Feb., m. and e. 1 gr. On 5th and 6th had bitter taste, hard scanty stool, distensio of abdomen, pressure in chest anteriorly, great anxiety and restlessness, flushes o heat in face; e., bad appetite, great weariness and prostration, could hardly walk great drowsiness by d., lachrymose humour, feels inclined to cry out aloud, burning aching, and dimness of eyes, swollen feeling of eyelids, red inner surface of lids; in e by artificial light like a veil before eyes, horrible pressive headache in forehead, daze feeling in head.—4th and 6th. After midnight profuse sweat.—7th. Chilliness all d.—8th. Very prostrated and chilly. The next d. all the symptoms gradually subsided, bu the burning in eyes continued till 11th, and the distension of abdomen, pressure i head, and abnormal stools lasted some weeks. (Hesse, *loc. cit.*)

2. A labourer, æt. 22, convalescent from smallpox, which had left behind redne of edges of lids, got on 27th Feb., at 11.30 a.m., 10 gr. After 2 h. frequent biliou eructations and warmth and working all over body, frequent flushes of heat in hea and chest, with anxiety, feeling of working in abdomen, most in umbilical region frequent emission of flatus, little appetite, frequent irritation with burning and cuttin

pain, vertigo, out-pressing headache, as though head would sink down, in e. a copious feculent diarrhœic stool with much straining, at n. profuse sweat. Next m. felt very weak in limbs, appetite returned. Afternoon 4 diarrhœic stools, headache, heat, and vertigo continued and got worse in afternoon. In m. again profuse sweat. From this time the symptoms gradually subsided, but the stools continued loose till 8th March, generally 2 or 3 per diem, with some cutting. Eyes got better. (*Ibid.*)

3. A sewing girl, æt. 21, quite healthy except for pains with menses, took from 23rd to 26th March, m. and e., 1 gr. and on 27th and 28th, m. and e., 2 gr., altogether 12 gr. On 26th, after dinner and all afternoon intense thirst and flushing of face, especially on l. side and in l. eye.—28th. Eruption of papules on thighs, which she had before, became increased, and itched much.—29th. A considerable gelatinous sediment in urine, which was dark yellow.—30th. Anorexia. During first days costive stools, in the m. chilliness over back, cutting boring sensation, afternoon and e. heat of face, chiefly in eyes and round about them; sometimes cutting in abdomen; the heat and burning in eyes were very severe on 30th and 31st, palpebral conjunctiva red; when she washed her eyes with cold water she felt as if a skin were drawn over them. Sleep at n. disturbed by itching on thighs and disagreeable dreams. By d. always tired and sleepy. General weakness of limbs, especially legs, which pained her on going upstairs. (*Ibid.*)

4. A girl, æt. 19, got 7 gr. She had only occasional cutting and pressure in abdomen. (*Ibid.*)

5. HERBERGER took 4 gr. in m., and had eructations; cuttings and rumblings in abdomen, with copious fluid stools; later, painless desire for stool, and thin evacuations without pain; weak, sick feeling. (WIBMER, *op. cit.*)

III. *Experiments on Animals.*—1. Given to fowls in pills amounting to a quantum of 4 to 8 gr., with each day's food, the drug caused progressive loss of appetite, to the extent of producing marked inanition. (PHILLIPS, *op. cit.*)

BISMUTHUM.

Including the sub-nitrate, magistery of B., $Bi_2O_3.2HNO_3$; the nitrate, $BiO_3.HNO_5$; and the oxide, BiO_3.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. vi of original, vol. i of translation. Contains 11 symptoms from self and 97 from three others, obtained from sub-nitrate. (H. calls his preparation an oxide; but the directions he gives for making it are those now considered to result in a sub-nitrate.)

2. WERNEK proved nitrate* on several persons.—*a.* A girl, æt. 18, took 6 gr. in m. fasting. In 1 h. heat and confusion of head; pulse quick, small, and tense; tongue moist and red. Next d. at 5 a.m. some griping in bowels, followed by two liquid rather bilious stools.

b. A girl, æt. 19, took 6 gr. In 1 h. pressive pain in frontal region and vertigo on moving. After 2 h. heat all over body, pulse quick, contracted. After 3 h. frequent empty eructations and discomfort in stomach, soon followed by a liquid stool.

c. A boy, æt. 6, took 6 gr. in soup. After 1½ h. complained of nausea, soon followed by inodorous eructations. Pulse beat, 6 times only, spasmodically and tense.

d. Eight males between 24 and 30 years of age took the 1st d. 6, 2nd d. 8, 3rd d. 10, 4th d. 12 gr. 1 h. after each dose they had some headache, vertigo, and spasmodic pulse. Then pressure in stomach and empty eructation. All symptoms gone in 2 h.

* So called; probably sub-nitrate.—EDS.

e. A strong man, æt. 28, took 15 gr. without effect. Next d. took 20 gr. After 1½ h. considerable headache, vertigo, pressure in forehead, feeling of heat all over body, conjunctiva considerably reddened, pulse tense, spasmodic, tongue furred. After 3½ h. tiresome pressure and burning in stomach. After 4 h. much wind from stomach.

f. Another man took 15 gr. This caused slight transient headache. After 1 h. some pressure in stomach. After 2 h. much wind from stomach, a thin bilious stool.

g. A robust man, æt. 30, took 40 gr. fasting. After ½ h. pressure in stomach, vertigo, headache, especially in forehead, red eyes, sight dim, tongue furred, taste bitter, thirst increased, no appetite, pulse small, tense, spasmodic. After 1 h. later burning in stomach. After 1½ h. violent eructation, griping in bowels, vomited twice bilious matter. After 3 h. a liquid bilious stool.

h. A man took a dose (not mentioned how much), had the same symptoms in slighter degree. No vomiting, but after 5 h., with violent griping in bowels, had two liquid bilious stools.

i. Wernek himself, æt. 42, took after soup 20 gr. dry on tongue. Pulse full, large, soft, 80. The powder when swallowed felt astringent. After ½ h. discomfort in stomach and slight transient pain in forehead. After 1 h. pressure in stomach, rumbling in bowels and eructation. Night restless, pulse at midnight 95, spasmodic. On rising, head dazed. After ½ h. took 30 gr. in water. In another ½ h. pressure in stomach, frontal pain, vertigo, redness of conjunctiva; pulse small, contracted, hard, 87; temperature somewhat increased, tongue furred white, much thirst, no appetite. After ½ h., after drinking water, eructation of gas, nausea and slight bilious vomiting. At 6 p.m. 2 loose stools with griping. Next m. took 40 gr., pulse quiet, 82, full, soft. After 10 m. slight nausea, then pressure, later burning in stomach, pressure in forehead, vertigo, noise in ears, conjunctiva red, pulse quick, hard, small, 97. At 8 a.m. violent vertigo, headache, heat all over body. At 8.30 a.m. violent eructation, difficult respiration, nausea. At 9.30 a.m. twice bilious vomiting. At 4 p.m. griping in bowels with two liquid stools. (*Med.-chir. Zeitung*, 1831, vol. iii, 70, p. 312.)

3. A girl, æt. 22, took Jan. 21st, 1792, 8 gr. fasting without effect. On 22nd took 16, on 23rd 24 gr. Perspired freely at n., a thing to which she was not accustomed. On 25th took 30 gr. Had 3 stools during d., and at n. sweat was more copious and accompanied with burning feeling in skin. On 26th took ℈ij, which caused nausea, salivation, eructations, increased heat, and quicker pulse. In e., ℈i more. Sweat and heat as before in n., with urgent nausea and vomitings; former lasted into next d. She had some gripings, and stools of last 2 d. were fluid. Took no medicine till Feb. 2nd, and felt quite well. On that d. ʒss, followed by some nausea, and at n. heat and sweat; latter also next d. On 4th ʒj; nausea, eructations, and vomiting, with quickened pulse. Same dose in e. brought on symptoms of Jan. 26th. Appetite remained good throughout. (KERCKSIG, in Schlegel's *Thesaurus Mat. Med.*, ii, 321).

4. Seven boys, æt. 10 to 13, robust, took B. for ascarides. March

13th, 8 grs. each. Two found no effect, two had some gripings, three had loose stools, with gripings in one. At n. 5 out of the 7 sweated. On 14th, same dose. In 3 there was some looseness, and on 16th—no more medicine having been taken—2 of these still had fluid stools. Another, as strong as the rest, complained this m. of burning and shooting pain in various parts of abdomen, also of burning heat and sense of intoxication. He had several loose stools, with some relief therefrom. In afternoon, giddy, tipsy, morose; his aspect was sad; abdomen soft; pain was not increased by pressure, but he disliked it when made on epigastrium. Tongue clean; acid and bitter eructations. He complained also of headache, bitter taste, and great thirst; pulse was hard, full, and quick. At n. fair sleep, but broken by terrors; much borborygmus, and about dawn stool and bilious vomiting. In m. abdomen was easier, but he had lumbago, and at times difficulty of breathing. Pulse hard and full, but less quick. Gradually improved, but tongue on 18th was whitish yellow. Headache, vertigo and intoxicated feeling continued after other symptoms had passed away. (*Ibid.*)

II. *Poisonings.*—1. KERNER gives the following case: A man, æt. 40, robust, full-blooded, given to drink, got by mistake for heartburn ʒij of mag. bism., whereupon immediately there occurred vomiting, diarrhœa, retching and burning in throat. Next d. the same symptoms continued; pulse was small, extremities cold, cramps in hands and feet. Fauces and uvula inflamed, thirst, burning in throat, difficult deglutition, dry nose, bad taste. Next n. was tolerable, but the following m. increased sore-throat, eructations, nasty taste, strong fever, weight in body, face and hands swollen, stools loose. He got an opiate emulsion and leeches to throat. In afternoon there was burning of skin, impeded respiration, stupefaction, mist before eyes. Not a drop of urine passed since the drug was swallowed, and yet the bladder is not distended. Next d. less fever, skin dry, still no urine passed, abdomen distended, painless, bowels open. Every h. became more paralysed in all parts. On 4th d. fever increased, pain in abdomen, face red, great heat, stools thin. A vein was opened. 5th d., colic increased; no urine yet, but bladder not painful; delirium. 6th d., abdomen very large, fœtid eructations and diarrhœa, pulse full and febrile, intolerable taste in mouth, thirst and great burning in throat. 7th d., pale urine passed, abdomen still distended, pulse small and weak. Amid anxiety, asthma, cadaverous smelling diarrhœa, generally increasing insensibility, delirium, died on 10th d. *P.M.* showed brain not very full of blood, betwixt the convolutions a gelatinous deposit, some fluid in the cavities, the velum palati, tonsils, uvula, root of tongue and epiglottis in a state of mortification, the lining membrane of larynx dotted with black spots. Lungs normal, interior of both ventricles of heart of bright inflammatory red colour. Intestines all distended with gas; stomach and bowels all inflamed with gangrenous patches in them; m.m. macerated, easily detached. Urinary apparatus normal. Spinal vessels full of blood, especially about cauda equina. (*Heidelberger klin. Annalen*, 1829, vol. v, 14, 3, p. 348.)

2. The same writer describes among the effects induced by a dose of 40 gr. of the medicine, oppression and constriction of epigastrium, faintness, headache, injected conjunctivæ, anxious expression, bitter

taste in mouth, thirst, anorexia, and a small tense pulse. (STILLÉ, *op. cit.*)

3. SOBERNHEIM, after narrating Kerner's case (No. 1), describes another which was fatal in 9 d. after a like dose of the medicine had been taken. The symptoms were those of intense gastro-enteritis, and, in addition, swelling of face, hands, tongue, and abdomen, salivation, spasms of limbs, dyspnœa, hiccup, and delirium. On examination of the body, the œsophagus, epiglottis and larynx were found gangrenous, stomach and intestines highly inflamed, and the vicinity of the pylorus also gangrenous.* (*Ibid.*)

4. A country apothecary gave a patient of mine 12 drachm doses, instead of 1 drachm in 12 doses. The man took ʒj the first d., ʒij the second, and ʒj the third, when I was called and found him suffering intense pain in abdomen and throat. He had vomited on previous e.; pulse was small, he felt very feeble, and had much anxiety about præcordia. He was several d. very poorly, but finally recovered. (TRAILL, *Med. Jurisprudence*, p. 115.)

5. LUSSANA, giving the subnitrate in large doses, chiefly in tuberculous diarrhœa, witnessed no irritation, nor any arrest of the disease, but the supervention of a colliquative and scorbutic state. "The patient acquires a leaden aspect; the eyes become sunken, and present a livid sub-palpebral circle; the breath is rendered offensive; the gums swell, grow livid, and discharge a sanious blood; hæmorrhage is readily excited, and sometimes profuse passive hæmorrhages arise." (*Gaz. Med. It. Fed. Tosc.*, 1852, p. 44.)

6. M. Z—, a girl, on March 21st was operated on for fungous inflammation of knee-joint by excision of joint. The wound, which was large, was washed out with sol. of zinc. chlorid., and subnitr. bism. well rubbed into it. On 28th March the urine showed a black discolouration as in carbolic acid poisoning, which was not attended to as there was a compress of carbolic acid over the bismuth compress. The carbolic was left off on 11th April, but the urine continued brown and left a black sediment on utensil. On 19th April it was ascertained that the sediment was at first white but became black on standing. On April 22nd the urine was examined and found to contain a considerable quantity of albumen; under microscope many epithelial casts were found. The black deposit was found to contain bismuth. On the 1st April a small black border was observed in gums of upper jaw. After leaving off the bismuth the desquamative nephritis and the black border of the gums rapidly disappeared. (KOCHER, *Volkmann's Samml. Klin. Vortr.*, No. 224, 1882.)

7. A girl was operated on for hip-joint disease and bismuth in powder introduced into the wound. In a few days there occurred a slight turbidity and blackish discolouration of urine. The urine when heated with acid showed a considerable cloudiness, and some casts and cylinder epithelium were seen under microscope.—Several other cases of wounds dressed with bismuth powder showed albumen and casts in urine. (*Ibid.*)

* This "gangrenous" appearance is probably due to the blackish tint which the drug assumes when combined with sulphur, which it finds so freely in the interior of the body.—EDS.

8. A man, æt. 32, had his enlarged cervical glands excised on 25th March. The large wound was dressed with bismuth powder. He had first a chloroform icterus. On 28th March complained of toothache and bad taste in mouth; there was considerable swelling of gums, which had a bluish border. Chlorate of potash relieved the mouth, but the symptoms returned again more severely. After being dressed with bismuth on 4th April he complained of severe burning in mouth, the gums were swollen and the teeth loosened. The wound being healed the mouth affection improved rapidly, but there occurred blackening of teeth and of the edge of gums. These symptoms went off during a mineral water treatment. (*Ibid.*)

9. A woman, æt. 46, who had been operated on for cancer of mamma, had the wound dressed with bismuth. She had black discolouration of gums, nothing more. (*Ibid.*)

10. A single woman, æt. 29, had large keloids removed from both sides of the neck on 25th March. The wounds were dressed with powdered bismuth. She was dismissed cured on 4th April. She afterwards was affected with heat of mouth, some of her teeth fell out, and she had diarrhœa of greenish black colour with pains in abdomen for 14 d. (*Ibid.*)

11. A man, æt. 56, had on 14th March his arm cut off at shoulder-joint for osteosarcoma of humerus. Bismuth powder was rubbed into wound. On 17th March he had colicky pains in abdomen and diarrhœa. The urine was found to contain some albumen. On 23rd he had vomiting and the diarrhœa continued. On 28th, dyspnœa, signs of collapse. He died on 29th. Extensive disease of kidneys and liver was found. The intestinal tract, especially colon, showed great black pigmentation. (*Ibid.*)

12. A girl, æt. 14, on 14th July had her right knee resected. The wound was dressed with bism. subnit. About 14 d. after operation she got stomatitis with salivation, bluish discolouration of the inflamed parts and great tenderness. A black sediment was deposited from the urine.—30th July. Patient complains of want of appetite. There is a blackish blue seam on the gums of upper and lower jaw. Great tenderness of gums especially when eating.—4th Aug. Black discolouration increased. Under surface of tongue tip and both borders much discoloured.—9th Aug. Uvula, hard palate, soft palate, arch of fauces, and m.m. of cheeks discoloured. On leaving off bismuth dressing these symptoms of bismuth poisoning gradually went off. (PETERSEN, *Deutsch. med. Wochenschr.*, No. 25, 1883.)

III. *Experiments on animals.*—1. *a.* About 30 centigr. of the nitrate (liquid) were injected, at midday, in jugular vein of small dog. At 4, nothing noteworthy; next d., 10 a.m., after great efforts, vomited a little liquid matter four or five times in succession (had had no food for forty-eight h.); plaintive cries, hind legs agitated with convulsive trembling; heart beats strong, noticeable at a distance, very frequent; breathing slightly hurried and impeded; took deep inspirations; downcast, hardly sensitive to external impressions, remained lying on side. At 1.30 was dying; convulsive movements stronger, especially in muscles of posterior extremities; respiration rather more impeded, general trembling. Died at 3. Lungs of dark colour, crepitating in nearly all portions; lung tissue held much air; in one of r. lobes there were some small dense portions, similar in structure to spleen, and not crepitating. Stomach and intestines showed nothing noteworthy.

b. Injection of 40 centigr. of nitrate into jugular of small dog; no effects after 2 d. Further injection of 75 centigr., but into jugular of opposite side; dog had vertigo instantly; could not make a step without stumbling; fell, and when helped up again, widened his legs and dropped again; state was as of drunken man. After 3 m. breathing difficult, deep inspirations; tongue and mouth very livid. Died 8 m. after injection. Autopsy immediate. Heart no longer contracted; l. ventricle empty, or rather only held a little black blood; arteries the same. Lungs furrowed and shrunk, fairly crepitating, colour slightly red.

c. At 11, small dog swallowed 3 grammes of subnitrate: directly after his œsophagus was detached and ligatured. After 6 m. had nausea with efforts to vomit; mouth full of white and fluent mucus; plaintive cries. At 1, seemed to suffer much; renewed attempts to vomit; face downcast, hind legs trembling. Next day, at 12, walked easily, and only had prostration. Died in following n. Mucous membrane of stomach was of bright red; that of duodenum had some very red small spots. Back part of lungs was of livid aspect.

d. At 11, small dog swallowed 6 grammes of nitrate; after 2 m. vomited white, stringy matter, in which it was easy to detect part of poison. After ¾ h. more vomiting. At 1, breathing impeded, noisy, and very deep; not faster than usual. At 7 p.m. greater difficulty in breathing, seemed to suffer in abdomen. Died during n. Great portion of mucous membrane of stomach was almost destroyed by suppuration; least rubbing was enough to get it away in strips; it was ulcerated near pylorus; muscular tunic of this part was bright red, and could easily be separated from serous membrane; many spots in lungs of a livid red dense tissue like that of liver, not crepitating, containing much reddish serum and black blood, not floating on water.

e. Spaniel took 10 grammes of subnitrate at 4; did not vomit; suffered much at n., died next d. at 12. Mucous membrane of stomach was very red and ulcerated for 5 centimètres, easily peeled off; that of duodenum and jejunum also very red. Lungs filled with dark red blood, and very slightly crepitating.

f. At 11 a.m. 6 grammes and 5 décigr. of nitrate in powder were applied to cellular tissue of inner part of thigh of small dog. Died next m. in collapse. Autopsy: seat of operation had ulcer size of palm of hand, surface covered with pale yellow powder; was neither red nor infiltrated. Muscles under powder looked dried up, hardened, and as if bruised. Digestive canal seemed in natural condition. Lungs were red and injected. Heart and liver seemed normal. Same experiment on a rather stronger dog than preceding, only with 3 grammes and 3 décigr. Died after forty h. with signs only of prostration. Digestive canal, liver, spleen, kidneys, lungs, all in natural state. Seat of operation similar in appearance to preceding case. Heart full of black coagulated blood. In l. ventricle several spots of a cherry red, rather extensive, but not deep; especially on carneæ columnæ. (ORFILA, *op. cit.*, sub voce.)

2. The soluble salts of B., such as the citrate of B. and ammonia, when given in large doses have an action like that of antimony and arsenic, and cause gastro-enteritis with fatty degeneration of the liver. (BRUNTON, *op. cit.*, p. 657.)

3. *a.* According to Lebedoff, glycogen disappears from the liver of animals after long-continued feeding with B.

b. The ammonio-citrate of B. is said by Stephanowitsch to be a very powerful poison, and to act in a similar manner to phosphorus. (NAUNYN, *Ziemssen's Cycl.*, xvii, 682.)

BORAX.

Natrum biboracicum, acid borate of sodium, $Na_2B_4O_7.10H_2O$. Including boracic acid and other borates.

I. *Provings.*—1. HAHNEMANN, *Chronic Diseases*, Part 2 of original, vol. of translation. Contains 460 symptoms from self and Schreter.

2. *a.* BINSWANGER.—D. M—, æt. 25, healthy, took borax in various

doses repeatedly without effect. 1½ drachms in cold water, taken fasting, caused in half an h. hawking, much cold saliva, and after 16 m. vomiting of a viscid fluid mass, with strong alkaline reaction. One day he took at 8 a.m. 1 drachm, the same at 8.30, 9, 9.30 and 11 a.m. There occurred great nausea and weight in stomach, going off when walking in open air. In afternoon rumbling in belly and two scanty, pappy stools. On waking next morning head confused, sick headache, a pappy stool. On third and fourth day still pappy stools.

b. The same person took ʒss, and then ʒj of B. acid, but nothing was observed except increased call to urinate. One m. he took ʒj at 8 and again at 9 a.m. In ¾ h. sudden violent nausea, retching or vomiting of 1½ oz. viscid slime with watery fluid, with strong alkaline reaction. Till dinner weight and uneasiness in stomach. At 6 p.m. ʒj. All day long there had been continued call to make water, and in e. a slight transient pain in ureters. The quantity of urine passed was greater by two thirds than the ordinary quantity; it had a very acid reaction.

c. ʒij of B. tartarisata, in the course of 2 h., caused frequent urination and pappy stool. Next d. ʒvj in 6 h. caused one loose stool, m., and two in afternoon. The urine was increased by 16 oz. in 24 h.

d. First d., ℈j of borate of potash in four doses did nothing. Second d., ʒss; third d., ʒj. Always there occurred pressure and weight in stomach, nausea, increase of urine.

e. In the dose of ʒj, borate of ammonia caused the same symptoms, but the stomach affection lasted one d. Urine increased somewhat.

Some time after commencing these provings with the alkaline borates, he observed on r. thigh an impetiginous eruption consisting of pustules, which grew larger, and were in the middle of spots the size of a sixpence, round which new pustules formed, which when they burst discharged freely. After two months this eruption (impetigo figurata) extended to r. leg, then went to l. leg, and eight months after their first appearance, none of the drug having been taken for two months, all the ulcers had healed and left only dark red spots. (*Pharm. Würd. der Borsäure, &c.*, 1846.)

II. *Poisonings.*—1. Dr. Golding Bird says, "In women this drug (borax) cannot be used with impunity, as it certainly exerts a stimulant action on the uterus, and I have seen it in two instances produce abortion." A case is reported by Dr. Thorn, in which premature labour is stated to have been brought on by the administration of 30 gr. 3 times a d. for 16 d. The labour was natural, and the child was born alive. Similar testimony is furnished by Spengler. (Stillé, *op. cit.*)

2. A man, æt. 62, suffering from catarrh of stomach and proctitis, got for latter, twice daily, from December 8—24th, 1882, a clyster of B. acid, gr. 300 in 2½ per cent. solution. All went well till 23rd, when appetite departed, weakness set in, and temperature rose to 38·6°. On 24th he appeared pale and collapsed, was apathetic, complained of headache, vertigo, noise in ears, great weakness, loathing, and sweat in scrobiculus cordis, with occasional vomiting of greenish stuff. Tongue dry and furred, difficulty of moving it, and dryness in throat. Urine

showed albumen and boracic acid. These symptoms continued until 26th, only they were slighter; urine free from albumen; temp. lower. On Jan. 2nd he was as well as before using the acid. (*Schmidt's Jahr.*, cxcvii, p. 28.)

2. A man of 25, after thoracentesis, was treated by washing out the pleural cavity with 5 per cent. boracic acid water, the operation lasting an h., and 15 quarts of the solution having been employed, a portion of which remained in the chest. Vomiting, weakness, increase of pulse and temperature, followed, and later an erythematous eruption on the face. Within a d. or two all these symptoms grew worse; the erythema spread over body and thighs, pearly vesicles appeared over face and neck, vomiting continued, weakness increased, hiccup and dimness of vision followed, and finally, on the 4th d., death. (*Ibid.*)

3. A patient, æt. 16, suffered from an abscess in region of hip, which was washed out with a similar solution, a portion remaining in the cavity of the abscess. Within ¼ h. uncontrollable vomiting began, and patient died of exhaustion on 3rd d. (*Ibid.*)

4. Dr. Gowers reports 2 cases occurring in his own practice, and one related to him by a friend, in which eruption of psoriasis resulted from the internal administration of borax for epilepsy. The drug was given in Dr. Gowers' cases in 15—20 gr. doses 3 times a d., and the eruption appeared in one after 2 years, in the other after 8 months of its employment. In two of the cases the addition or substitution of arsenic caused it to disappear. It occurred on trunk and limbs, but most on arms; face was free. It occupied both flexor and extensor aspects of limbs. The patches varied in size up to 1½ in. in diameter. Their appearance was quite characteristic, but the scales were not so thick as they sometimes are in ordinary psoriasis. In no case was there a history of syphilis, and in one this could with certainty be excluded. (*Lancet*, Sept. 24th, 1881.)

5. In one case where the ℞ trit. of borax was given freely for catarrhal fever, there seemed to result an engorgement of the uterus, with bearing-down pains and prolapsus; this condition was attended by increased heat in vagina, and was finally relieved spontaneously by a profuse discharge of albuminous leucorrhœa, clear and glutinous. (WOODWARD, *U. S. Med. Inv.*, viii, 495.)

III. *Experiments on Animals.*—1. A terrier was poisoned with repeated doses of borax. He had vomiting of slime and bile, and seemed to be in great pain. He was killed. The *P.M.* showed softening of the m.m. of pylorus, some inflamed patches in upper third of ileum, also inflammation of muscular layer of bowel and softening of m.m., including that of ilio-cæcal valve. (BINSWANGER, *op. cit.*)

2. Rabbits poisoned with B. acid had quick breathing and heart's beats, which gradually grew weaker, they cowered and ran about, and were purged, the excrements soft and slimy. One, after ¾ h., discharged milky urine, alkaline reaction, another had slightly tinted neutral urine. *P.M.* showed in one the mucous covering of the stomach very thick, the second had almost no mucus, the m.m. of stomach soft, the capillaries full of blood. The entire m.m. of small intestine inflamed, its epithelial covering detached and turned into mucus, in one pale, in the other coloured red. The cæcum little altered, but contained much mucus, and the capillaries injected. (MITSCHERLICH, *De acid. acet., oxalic., &c., effectu in animalibus observatio.* Berolini, 1845.)

BOVISTA.

Lycoperdon Bovista, Sow. Puff-ball. Nat. Ord., *Fungi*.

I. *Provings*.—1. A young woman, very sensitive to medicinal action, experienced from olfaction of mother tincture :—Anxious respiration; loss of strength, so as to be unable to get up or raise the head; anguish, feeling as if in a black fog; confused ideas; nausea; weight in head; strong pressure on forehead and especially in temples; breathing deep and noisy. In attempting to walk she fell and fainted; her trunk and limbs, she was told, became stiff. After great efforts to rise, she fell again and became still, despairing of herself. Convulsive cough; difficulty in breathing, which was deep and anxious; in a feeble voice she asked for help; a window was opened, and the fresh air brought her new life and great relief. (PETROZ, *Journ. de la Soc. Gall.*, iv, 80.)

2. HARTLAUB.—Restlessness, anguish, unpleasant heat and weight in abdomen, and varying feeling of coldness through whole body; after 3 h. great depression, then alternating moods, and after 7 h. great sadness, amounting to melancholy; ill-humour, confusion of head, gloominess, also peevishness and irritability, for 14 d.; extreme indifference to all surroundings (9th d.); she is very absent-minded, makes mistakes in writing, leaves out whole syllables and writes several words entirely wrong (5th d.); on 13th d. so absent that she cannot, even with great exertion, pay attention to what is being said and done. Confusion and heaviness in occiput, with inclination of eyelids to close, and feeling as if eyes would be drawn backwards (especially in clear evening light), with anxiety and restlessness of body; whole head is confused and oppressed, and there are drawings about it, especially early in m., when also there is dizziness; frequent vertigo, with feeling as if his senses left him; when, in early m. rising from seat, a kind of vertigo with stupefaction, so that he nearly fell down (2nd d.); dull headache, as from pressure over r. eyeball towards temporal region; headache, with weight, which makes her ill-humoured and unable to think continuously, pain is increased on lying, and is most severe on waking from mid-day siesta, when it is combined with a sort of pulsation in head, its chief seat being forehead near nose, which is stopped up; on waking at 3 a.m. very violent headache, in which he feels every pulsation, and which threatens to burst head asunder, gradually disappearing on outbreak of perspiration on head especially (17th d.); tearing pains in forehead, extending to l. side of occiput and then back again to forehead, finally settling in l. temple, where it remains several d. (10th d.); pressing tearing in forehead, especially over orbits, extending into root of nose (6th and 7th d.); tearing in whole head, with weight and bruised feeling, continuing almost constantly. Feeling in r. eye as if something were in it, with lachrymation (4th d.); pressure over eyes, as if something were in them, l. eye being reddened (8th d.); reddened carunculæ (32nd d.); he cannot open eyes in m. (6th d.); lachrymation in m.; on rising in m. feeling as of veil before eyes (4th d.); drawing in ears (3rd d.); stitches in r. ear; violent itching in ears, with some dulness of hearing; ulcer in r. ear, with pain therein during swallowing. Scabby nostrils. After 14 d. face is very pale in m. on rising for several d. Swelling of cervical glands; pain in upper front teeth, which are tender to touch and on chewing, somewhat relieved on upper lip beginning to swell; this it continues to do till it hangs over lower one, and is in a line with nose; after swelling of lip had subsided a little l. cheek began to swell; all swollen parts are tender to touch (14th d.) Dull toothache, which she had not had for years, followed by long-lasting elevated pale swelling of upper lip, and therewith sweat all n. till m., especially on head (21st d.). In e. in bed, toothache, only relieved by heat (14th d.); toothache ceased on walking in open air; dull drawing pains in hollow teeth (12 h.); jerking toothache (5th d.); stitches in sound teeth, especially at n., so that he could not sleep, with ready bleeding of gums, pain relieved by sucking blood out of teeth with tongue; stitches in teeth go into eyes; toothache, as if exposed nerves were rubbed; teeth often become covered with mucus; as often as he sucks gums, blood oozes into mouth, and the gums pain; at times clear blood issues from gums without any sucking of gums; in m. on waking teeth, gums, and lips are covered with clotted blood; in e. now and then teeth clap together, as in a chill. Cutting pain in tongue, recurring several d.; tongue yellow, furred in m. (7th d.) Stitching pain in palate, extending to chin, for some m. (1st d.); burning and heat in mouth, without thirst;

much saliva collects in mouth; bad taste in mouth, with much mucus; bad smell from mouth. Every m. throat scrapy and phlegmy; frequent pain in throat. Constant excessive hunger, he cannot eat enough, and is soon hungry again. After food frightful pain in umbilical region, as if belly were cut with knife, for some m. (3rd d.); during and after midday meal extraordinary weariness (15th d., had same after e. meal on 1st d.); on 5th d. great drowsiness after food. Thirstlessness; unquenchable thirst, in one who had previously never needed to drink (3 h.). Nausea. Fulness and anxiety in præcordia (1 h.). In afternoon colicky feelings in abdomen, and tendency to diarrhœa; cramp-like pain in abdomen, especially when inspiring and retracting belly (14th d.); frightful colic, so that he was obliged to bend quite double, and could not stand erect, with deep-red urine and much thirst, cutting pain in front of abdomen, in m., relieved after eating; distended abdomen, with pain therein (3rd d.); in e. in bed very violent pains in abdomen, as if all were dried up (3rd d.). Stool occurs at irregular times and is too hard; in secondary action it seems to make a hard stool soft. Flying stitches through perinæum to anus and genitals. During micturition pain in urethra, as if urine passed over a sore place, also a red, hard, painful knot in skin of penis, which went on to suppuration (14th d.). Constant feeling of catarrh in nose, with swelling (15th d.); fluent and stuffy coryza with oppression of head; nose much stopped up at n. (3rd d.). Hoarseness every m.; scratching in throat, with urging to cough (1st d.). Stiffness in neck in m. on rising (4th d.). L. arm felt lame and sprained, so that it was with difficulty he could raise it above head, pain increased so much during d. that at last he could hardly move arm, after sweat in m. pain greatly diminished; cramp-like drawings in tendons of l. wrist; sprained and ulcerative pain in l. wrist, in middle of palmar surface, only felt on touch or on flexing and extending hand; feeling of numbness in same. Flying stitches in l. leg, and in chest; cramp in l. thigh; r. leg is "utterly gone to sleep" in whatever position it is placed, for ¼ h. (1st. d.); shooting pain in l. knee, especially on rising from a sitting posture; stiffness and pain in l. knee if he tries to stretch it out again after it has been bent for some time; towards m., in bed, cramp in calves, so violent that they are painful towards e., as if leg were too short (14th d.). General anxiety, weakness of body, eructations, nausea, distension of abdomen, emission of flatus, frequent yawning and stretching of limbs, with irresistible desire for sleep (2 h.); sudden attack like faintness, while sitting at noon, as if objects turned upside down (3rd d.); bruised feeling in whole body, especially in joints of arms and abdominal muscles, to touch, and on motion (14th d.); he felt very weary and exhausted after a short walk (6th and 7th d.). Extraordinary itching on r. arm for several d. (9th d.), later on both arms, with biting and burning after washing; itching over whole scalp, extending to neck, especially when warm, so violent as to compel scratching, which does not relieve; same on coccyx, where after scratching a scurf appeared, lasting some d. (1st d.); goose-flesh over whole body, with severe itching; itching of whole body in e., followed by outbreak of tetters (10 d.); itching and small pimples on head (3 weeks); hands are covered with small, dry, reddish pimples, which gradually disappear in a few d.; small sore places on hairy scalp, with itching; a previously existing wart developed a red point, suppurated, and disappeared (21st d.). Extraordinarily violent pains in corns, lasting a long time (18th d.). On 1st. n. very sound quiet sleep, and on rising later than usual in m. great lassitude, especially in legs, unremembered dreams (4th d.); vexatious dreams and waking every moment during n. Chilly all d., with cold hands; chilliness every m. from 6 to 9, cold to touch externally, with griping in abdomen, without subsequent heat and without thirst; in e. on lying down in a warm room a shaking chill for some seconds (15th d.); constant coldness of hands and feet; intermitting fever of 8 d. duration, every e. from 9 to 10 violent chill, commencing with coldness on back, on 1st d. with thirst, without heat or sweat following, and always with violent drawing colic (4th d.); paralytic and itching feeling in radial arteries of forearms (1st d.); copious sweat in axillæ, while walking along in cold temperature (1st d.) (HARTL. and TRINKS, *Arzneimittellehre*, iii, 1.*)

* This is one of the vicious symptom-lists of the sub-Hahnemannic epoch, without any information as to subjects, doses, or relations between symptoms. We have given Hartlaub's nearly complete, but a selection only from Schreter's and Nenning's. —EDS.

3. NENNING.—His young women (see Acidum Hydrocyanicum, I, 26) were generally peevish and ill-tempered while taking drug. During a pressive headache, sudden attack (while standing) of vertigo and stupid feeling in head, so that she lost consciousness for a moment; headaches are frequently mentioned, sometimes very severe, in all parts, and variously conditioned. Excessively painful pressure and twisting deep in r. eye, involving orbit, which is sensitive to pressure, during catamenia; similar pain from root of nose to behind l. frontal eminence, with lachrymation of l. eye, after cessation of which heat arose over whole body, with feeling as if sweat would break out; eyes always agglutinated in m. A few drops of blood from nose every time she sneezes (5th d.); burning in both nostrils, as if they were sore. Cracked lips, and burning there. Toothache during menstruation. Burning on tip and numbness of back part of tongue and over whole mouth, and dryness in throat for 4 m. running on waking, disappearing after eating (13th d.). Cold feeling in stomach, as if ice lay in it. Stitches in epigastrium and hypochondria; abdomen sensitive internally and externally, so that she could not bear it touched, and was obliged to walk bent (11th d.). Painful urging to stool, followed by three attacks of diarrhœa, and afterwards tenesmus and burning in anus, with prostration of whole body (21st d.). Urine turbid, and burning after passing it. Menstruation irregular, sometimes too early, sometimes too late, accompanied by headache, toothache, and diarrhœa; often altered in quality. Thick albuminous leucorrhœa on walking. Much shooting in walls of chest, front and back, and tearing in limbs. Pruritus and itching pimples in many parts. Dreams terrifying. Much chilliness. (*Ibid.*)

4. SCHRETER.—Mental condition exalted, varying between extremes; much less headache noted than by others; illusion of vision, so that she feared a person sitting near her cutting paper would stick scissors into her eyes—they seemed just before her face; contraction over nose, with feeling of heaviness and pressure, as though skin were too short; great changes of colour in face, at one time red, at another pale; small depressed ulcer on l. margin of tongue, sore and painful to touch; stammering when reading; swollen cervical glands, with tension and drawing pains, for 6 d.; every m. on rising nauseous taste in mouth, as if stomach was foul, for 14 d. in succession; orifice of urethra inflamed and agglutinated; great scraping of larynx as if sore, extending down into chest, with much tough mucus in chest, it is raised with difficulty, and threatens to suffocate her; palpitation, with vertigo and headache,—with congestion to head, heat and thirst, and itching in r. eye,—with trembling of whole body and uneasiness; great weariness in hands and feet all d.; marked paresis of arms and hands, especially r.; skin of hands becomes unusually dented by instruments with which she is working—shears or knives; much and lasting heat, with thirst, anxiety, and restlessness. (*Ibid.*)

BROMUM.

Including bromine itself; *hydrobromic acid* (HBr); *bromal hydrate* (C_2Br_3OH); and *bromoform* ($CHBr_3$); besides some other compounds mentioned in III.*

I. *Provings.*—1. GLOVER took for a month a saturated solution of B., at first 40 dr. in water 3 times a d., at last half a wineglassful. Sometimes slight pain in stomach, and slight action on skin and kidneys. Of B. itself 1½ dr. in ℥ss of water gave him heat in mouth, œsophagus, and stomach, followed by colicky pains; 2 dr. gave nausea, hiccup, and increased secretion of urine. (*Ed. Med. and Surg. Journ.*, lviii, 137.)

2. *a.* HÖRING took of a solution which contained 6 drops of bromum in ½ oz. He experienced a rough disagreeable feeling in œsophagus

* These various preparations are mentioned, not so much with a view to their therapeutic employment homœopathically, but for the light they throw on the neurotic action of bromine itself.—EDS.

and some pinching in bowels. On the 9th d. he took 7, on the 10th 8 drops, this caused pinching in bowels and increased secretion of saliva. After taking on 11th d. 9, in all 72 drops, he had the same d. several pappy stools, also in n., and three next d. during which he had taken 1st d. 10, 2nd 11, 3rd 12 drops. On the 15th d., after taking 13 drops, he had some pinching and a scrapy taste. After 1½ h. a thin, diarrhœic stool, occurring 4 times till the following m.; the next d., after 14 drops, violent diarrhœa, which was allayed by a cup of strong coffee. In e. anxiety, oppression of heart, and headache. In other trials, during which he took in a fortnight in small doses about 3 drachms of the bromum solution, the same symptoms appeared. Pulse during last d. of proving was slow and hard.

b. He took for several successive d. 20 drops of the solution after food. After 3 d., when he had taken ʒj, he had two liquid stools at n., which on the 4th d. increased in frequency, and on 5th d. became diarrhœic. Always after swallowing the dose he had burning in stomach. After 40 drops at once, besides pappy stools, he felt from tongue to stomach a very acute burning, nausea, inclination to vomit, mouth filled with saliva, breathing oppressed and somewhat painful; some h. after taking the medicine he had headache and violent stitches in lungs on breathing deeply, frequent cough, pulse full, rather hard, at first slower, afterwards from 80 to 85 per minute.

c. H. also put 3 grs. of precipitated B. on a raw place in his arm (see K. brom., I, 1 *b*). After 12 h. he had violent pains in abdomen and eructations, and in 1½ h. more 3 watery stools in quick succession. (*Ueber die Wirkungen des Broms*, Tübing., 1838.)

3. A strong healthy medical student took in 9 d. 144 drops of the solution. He had the same symptoms as Höring, and pappy stools, which increased to diarrhœa. (*Ibid.*)

4. Butzke took ½ drop of bromum in water and had nausea, eructation, roughness in throat, heat in stomach and salivation, pulse slow, and there was congestion in chest. The largest dose he took (30 drops of a solution of ½ drachm bromum in 4 oz. water) caused burning in stomach and above symptoms. (*Ibid.*)

5. Vapour of bromine inspired by Höring caused increased secretion of saliva and tears, increased secretion of nasal mucus; he had coryza, cough, increased headache, vertigo. On breathing very concentrated bromine vapour the respiration was much oppressed, saliva much increased, cough and pain in chest; after a while pains in abdomen, and 2 h. later a very soft stool, which was repeated 3 times in afternoon and was quite liquid; slight tussiculation remained for several d. (*Ibid.*)

6. *a*. Heiemrdinger took in m., fasting, 5 drops of bromine in ½ oz. distilled water. Immediately cough with suffocative symptoms, respiration much oppressed, gasped for air; in the fauces first a disagreeable constricting sensation, followed by sensation of burning and soreness, salivation for ¼ h., and increased seceretion of mucus in buccal and nasal cavities, frequent eructations and retching, when much mucus is brought up from œsophagus. In abdomen disagreeable feeling of heat, pulse 70 (normal 64); after 6 m. slight vertigo combined with

nausea and constant inclination to vomit, without actual vomiting, tongue moist.

b. Another time he took fasting 8 drops of bromine in 1 oz. water. This caused great sensation of heat, increasing to burning, all down œsophagus to stomach, especially severe in fauces; secretion of mucus and saliva in mouth transiently increased, occasional rough cough, slight pressure in chest on deep inspiration; p. 70, frequent eructation; after 12 m., vertigo with nausea, pale face; after ¼ h. p. 62, slight retching without vomiting; after 1 h. slight vertigo and eructation; in forenoon repeated discharge of urine, loss of appetite; afternoon, thirst, stool attended by slight tenesmus.

c. Bromine in gaseous form acted chiefly on respiratory organs. He had great tightness of chest, cough, besides slight burning in eyes, with cramp-like contraction of musc. orbicular. palpebr., and increased secretion of tears and confusion of head. After 12 m. epistaxis with relief, p. quicker by a few beats; after 1½ h. all symptoms gone. (*Inaug. Diss.*, Tübing., 1838.)

7. *a.* Lembke. March 14th. 4 dr. brom. 1, fasting. Heat in occiput; frequent tickling in larynx with dry cough, instantly followed by tickling, cough causes pain to l. of nipple inwardly; slight oppression of chest; heat on back, mounting to head and face; slight pressive pain and weight on forehead, especially when coughing; flatus; disinclination to read; empty eructation; dull pressing pain in bone of r. knee; slight toothache in a carious tooth of l. upper jaw, same pain in a tooth of lower jaw later; frequent urging to stool with discharge of flatus, and pricks in anus; sneezing, bleeding from r. nostril on blowing nose gently; slept long, dreamt vividly and got out of bed in sleep. After 24 h. a small painful pimple in fork in front of anus. Occasional dry cough with pain in l. chest. After 36 h., pretty severe pressure in bone of l. temple. 3rd d., m., blows blood from r. nostril. 5th d., inflammation of fauces with dry cough from elongated uvula; thick yellow nasal mucus with streaks of blood; deglutition painful in m.; fauces dark red; urine for some d. dark and turbid, with red sediment.

b. April 17th. 8 dr. brom. 1, fasting. Immediately oppressed breathing; frequent deep breathing as if enough air did not get into lungs; desire to urinate ¼ h. after urination; dislike to read; pressure and weight in forehead. After 10 m. eructation of air; nausea; dry cough with shooting pain in thorax to l. of nipple; dazed feeling and heat of head; increase of watery saliva; roaring in r. ear; empty feeling; weight in head; stiffness of nuchal muscles; frequent call to urinate; feeling of something in throat, causing hawking; itching in nose. After ¾ h. qualmishness in pit of stomach; empty eructation; disinclination for work; feeling of exhaustion; warmth in stomach; eyes sensitive to light; vertigo; drowsiness; pressive pain and weight in forehead with heat; rumbling in bowels and œsophagus; these symptoms last long; cold running over back; sweat in palms; cold finger-tips; pain in chest and when coughing and blowing nose; pressure sometimes from stomach to œsophagus; pulse quick. After 1½ h. occasional chilly feeling; urine becomes turbid on standing with ammoniacal smell; pain in r. knee going downwards; feeling of heaviness in r. leg; dry

tongue; urine scanty, dark, and clear, passed with effort; stitches in orifice of urethra; tenderness of hypochondria and stomach with salivation. After 2 h. transient stitches in hypochondria from r. to l.; no appetite; urging to urinate with tickling at end of urethra; shooting in canthi of eyes; itching in various parts of skin, relieved by scratching, but returning. After 3 h. profuse sweat in palms; all symptoms relieved by eating; pain in l. inguinal ring; sneezing. After 6 h. difficulty of fixing attention and bad memory; scanty dark urine; pain in l. inguinal canal, especially when walking, on pressure and when coughing; bright red blood blown from l. nostril. At n. little sleep; urine scanty, dark, turbid, with red sediment; blood blown from l. nostril; coryza for 2 d. After 3 d. considerable pain in hepatic region, especially when pressed and when driving, with great distension and hardness in r. hypochondrium, and feeling as of a hard sinking body, lasts 10 h.

c. May 1st. 15 dr. brom. 1. Soon difficulty of breathing; dull aching pain in forehead; teeth on edge; rumbling in bowels; eyes somewhat photophobic; loss of thought; need to breathe deeply occasionally; rumbling, discharge of flatus, and empty eructation; distant roaring in ears. After ½ h. dazed in head; pain under ribs especially on pressure, more in r. side; weak feeling; scraping in fauces, compelling hawking; photophobia with aching in eyes on moving them; loss of thought; crawling under skin of occiput; drowsiness; pain in umbilical region increased by retracting abdominal integuments; nausea; contractive sensation in orifices of salivary ducts with salivation, tasteless; pressure in forehead above eyes, with frowning. After 1 h. coldness over back with cold hands and feet; shooting with pressure and squeezing pain in l. side of larynx; pressure in forehead, weight in head, disinclined to think. After 1½ h. pains in vesical region with urging to urinate; sensitive to cold air with cold feeling through back and down legs; hepatic pain; pressure in r. frontal eminence; shooting pain from liver to umbilicus; sneezing; cool and damp hands; dull pain from spleen to spine; palpitation of heart; anxiety in chest, and difficulty of breathing After 2½ h. pain over r. eye and photophobia. After 3 h. heart's beats stronger, breathing deeper; scanty, dark urine; pressure in chest; in e. scraping and dryness in fauces. On May 12, inflammatory affection of m.m. of nose, fauces, and organs of respiration with pain, difficult deglutition, cough, hoarseness, yellow nasal mucus, yellow expectoration, lasting a week.

d. Aug. 11th. 10 dr. brom. 3, fasting. Immediately heat in stomach, dazed head; pressure in chest; difficult breathing; violent pain in stomach increased by pressure, relieved by bending forwards; abdomen distended; flush of heat from back; abdomen distended by flatulence; pain from stomach to navel and under false ribs; vertigo; deep breathing; empty eructation; sneezing. After 7 h. under r. ribs pain increased by pressure; stitches at top of chest, difficult breathing; feeling of prostration; sleep full of dreams; urine scanty. 2nd d., much ropy white mucus, chiefly in r. nostril; sometimes lumps of coherent yellow mucus in both nostrils; in e. pain in frontal and occipital bones; stitches deep in r. ear with heat of whole ear, and

great sensitiveness of head to cold air; urine scanty and dark. 3rd d., hard stool; a painless pile; the same pain under r. ribs. 4th d., last n. pinching and itching in larynx; roaring in ears; to-day aching pain in forehead behind eyes, with sensitiveness of eyes to light, stitches at end of urethra. 5th d., under l. ribs some transient pain; stitches in urethra; nose stopped up with mucus. 6th d., pain under r. ribs. 9th d., the pain under r. ribs continued and was sometimes so violent as to make breathing painful; abdomen distended with wind; pain, which seems in the region of gall-bladder, is relieved by sitting bent forward and by pressure; on breathing deeply it extends to navel, is worst 2 h. after eating. Occasional severe boring pain in l. tibia.

e. Aug. 30th, 15 dr. brom. 3. Pressive frontal pain coming and going; sneezing; heat mounts to head; appetite and urine diminished; n. pain in r. side under ribs. 31st, m., dry cough; aching frontal pain.

f. Sept. 2nd, 10 dr. brom. 1, fasting. After ½ h. empty eructations; rumbling in bowels and slight stomach-ache; dry cough; pressive frontal pain; nausea; scraping in throat; much thin saliva; shooting constriction in larynx, and pricking there on swallowing saliva; difficulty of breathing. After 1 h. tearing in frontal bone; vertigo; drawing in carious teeth both sides; shooting deep in r. ear; fauces and uvula reddened; distension of abdomen; discharge of much flatus; stomach-ache. After 1½ h. vertigo as though he would fall, with flush of heat. After 3½ h. painful boring in r. lower jaw; occasional stomach-ache; cutting pain in umbilical region, increased by pressure, after dinner. After 4 h. frequent sneezing. After 5 h. soft stool after the regular morning stool; aching in forehead; chilliness in back. After 9 h. boring pain in r. tibia. E., frontal headache and shooting in larynx. Sept. 3rd, hard stool; palpitation when walking.

g. Sept. 6th, at 6.30 a.m., 20 dr. brom. 1. Immediately burning taste and warmth in stomach. 7 a.m., frontal headache; frequent deep breathing when sitting; eructation of gas; heat of forehead and chest; heat and sweat of palms. 7.30 a.m., urging to urinate, stitches in urethra; tickling in nose; confusion and weight in head; stopped nose; grey spot before r. eye; deep breathing; sensitiveness of a carious tooth to cold water; much thin saliva; warmth in stomach; shooting in r. ear; scraping and shooting in throat for 2 h.; increased vascularity of conjunctiva of both eyes, and shooting in lids; dull pain in hollow tooth; hard stool. Sept. 7th. Sensitiveness of carious teeth to cold water; dull, aching, weary pain in bones of r. leg; a pile the size of a nut; shooting in lid of l. eye when reading; dazed head; a small swollen gland on each side of nape. All afternoon weary and sleepy; sensitive to cold air and chilly when moving, e. Next d. soft stool, pile gone; boring in r. lower jaw; the toothache lasts some days longer. (*Allg. h. Z.*, xxxvii, 115.)

8. Same. March 3rd, 9 a.m., 5 drops; 5th, 7 a.m., 10 drops brom. 3. On 3rd and 4th sharp stitches in r. and l. hypochondrium, tearing in tendons on dorsum of right foot.—5th. Soon after taking it repeated pressure on upper part of chest, causing tightness of breath; tearing in r. side of skull; pain in r. side between 7th and 9th ribs

when inspiring and moving. 12, noon, peculiar painful sensation in stomach, as though diarrhœa were about to come on. 1 p.m., liquid stool with some straining, though he had had a normal stool at 10 a.m.; pulsation in urethra behind testicles at 9 p.m.—7th, 7.30 a.m., 10 dr. 9 p.m., repeated boring in r. tibia; transient stitch under l. ribs.—8th. Pressing in prostate gland when walking; the last 3 d. nose felt stopped up, has to blow it frequently, thick mucus.—10th, 9 a.m., 2 dr. brom. 2. Here and there in thoracic walls shooting pains independent of respiration. 1 p.m., tension in tendons of dorsum of r. foot on flexing ankle-joint when walking. 5 p.m., sharp stitch in l. hypochonder.—11th, 7 a.m., 5 dr. 8 a.m., soon repeated dry cough, pressure on upper part of chest; pain in l. hypochonder; scraping and roughness in larynx, compelling hawking; drawing in tendons of r. instep, also in e.; momentary pressure in nasal and superior maxillary bones and in various parts of frontal bone. 12.30 p.m., 10 dr.; in ½ h. boring in l. tibia (also 8 p.m.) and long-continued pressure in frontal bone; in open air and in room audible rumbling of air in bowels lasting some time. 4.30 p.m., pulsation in r. hypochonder. 5.30 p.m., severe burning shooting in front of l. index. 7 p.m., much hawking on account of mucus in larynx.—12th, 7 a.m. 20 dr. 7.45 a.m., nausea. 8 a.m., pressure in stomach and r. hypochonder, with feeling of fulness; shooting in back of joint between 1st and 2nd phalanx of l. 4th finger lasting all forenoon, out-tearing pain between metacarpus and 1st phalanx of r. thumb. 9 a.m. and 6 p.m., boring in l. tibia; fine shooting deep in throat with scraping; after normal stool at 10 a.m. at 2 p.m. great urging to stool, when more wind than fæces was passed. 2.30 p.m., some strong heart's beats, moderated by deep inspiration when standing. 6 p.m., shooting in glands at sides of frænulum linguæ; before dinner and in e. compression in upper arm and both knee-joints.—15th, 7 a.m., 5 dr. brom 1. Soon scraping in throat and rough deep voice lasting about 1 h.; dryness in mouth lasting ½ h. 8.15 a.m., wandering pains in l. thoracic wall, independent of respiration; later these pains go to r. thoracic wall, when they become pressive; they leave the l. side and continue on r. side of chest on the 16th, 17th, and 18th, they come on when awaking, are not increased by breathing or movement, the pain is increased only by bending forwards both shoulders and upper part of chest or turning the thorax on its axis, consequently they are muscular. 7 p.m., scraping in larynx, dry cough, little appetite all d., active state of body and mind; this occurs on all subsequent days; in e. an intense bitter taste on tip of tongue.—16th, 6.45 a.m., 15 dr. In 5 m. some shooting in larynx and lachrymation, scraping and frequent hawking on account of mucus in throat. 7.45 a.m. and e., frequent sneezing. 8 p.m., boring in l. frontal bone, in lower part r. tibia, dull pain deep in l., then in r. leg when sitting; throbbing in front of r. knee lasting some m.; shooting in frænulum linguæ (as on 12th) with flow of thin saliva; later cold feeling on tip of tongue with flow of saliva. 1 p.m., smarting in conj. palpebr., sharp stitch in l. hypochonder.—17th, 7 a.m., 30 dr. 8 a.m., boring in lower part of l. tibia. 12, noon, much sneezing. 12.30 p.m. and later, much rumbling in abdomen. On 14th, 15th, and

16th, pricking when the red of the r. side of the upper lip lies on the lower lip; on the 17th this pains as if the upper lip had burst; this was not the case, but the part indicated almost as far as the commissure was covered with a number of yellow spots the size of a pin's head, not elevated, as though a yellow fluid were infiltrated under epithelium. 3 p.m., sharp stitch in r. axilla. 6 p.m., pressure on back of joint between 1st and 2nd phalanx of r. 4th finger. 7 p.m., some cutting in inner canthus of r. eye, the same in inner canthus of l. eye.—16th, wandering pressive pains in dorsal muscles below scapulæ, also on 18th; in second half of d. more nasal mucus secreted, sometimes with streaks of blood; the urine passed before dinner contains large flakes of white mucus. At n. sprang out of bed in sleep owing to a disturbing dream, and only recovered consciousness by the feet coming in contact with cold floor. Next m., 6 a.m., several drops of blood when blowing nose.—18th, 6.30, 50 dr. Soon fauces became dark red, the tonsils secreted more mucus, then came on scraping, shooting, feeling of rawness, tonsils swelled; all this lasted 2 to 3 h., recurred at every fresh dose and even at various times during d. till e. 8 a.m., much sneezing frequently repeated, recurring after subsequent doses; nasal mucus in large quantities, especially at back of nasal cavity, mucus sometimes watery and mixed with streaks of blood, in the intervals tiresome dryness in nose, also on d. when no brom. was taken. From 8 to 11 a.m. shooting pain in scrob. cordis extends to umbilical region, increased by deep pressure and seems to be seated deeper than stomach. 4 p.m., bruised pain in l. shoulder-joint, later in r. elbow-joint; shooting in throat; constriction in larynx. 6 p.m., jerking tearing pain through l. thumb, in frontal bone, very often, through r. big toe, in lower part of r. leg, in r. knee, with bruised pain while sitting. 7 p.m., the pain in r. thoracic wall increased much, lifting anything with r. hand increased it greatly, also walking; sometimes the pain goes into dorsal muscles of the same side, and then it is increased by expiration; this remains till he goes to sleep, it wakes him up when he turns in bed; continues as severe in m. of 19th, and is only diminished on the 23rd, is especially severe m. and e., worse when moving thorax after resting still for some time, slighter when walking than when sitting; especially severe on waking, when sitting up is almost impossible; the pain lasts till 2nd April; every time he takes a dose it becomes more severe and extends to r. dorsal muscles. On 3rd and 4th April it is almost gone. 10 a.m. and 6 p.m., shooting pain to l. of navel on internal surface of abdominal wall, increased by pressure. 6.30 p.m., cutting deep in umbilical region increased by pressure, lasting ½ h., with shooting towards rectum, neck of bladder, and r. spermatic cord. 2 p.m., soon after dinner, deep in brain a feeling as if before an attack of apoplexy, a feeling as though loss of consciousness and vertigo would come on, equally strong when walking and sitting, lasting ½ h. 2.15 p.m., shooting in internal condyle of r. elbow. 3 p.m., coldness through back and limbs in warm room.—20th, m., pressure as with a peg above l. ear, later shooting in tip of tongue.—21st and 22nd. Some compression at base of l. 4th and 5th fingers; cutting in flesh near nail of big toe; itching between fingers, soon going off; during the past days there sometimes exuded from urethra a clear

drop of mucus.—23rd. Boring in spines of some dorsal vertebræ occasionally. 12, noon, some cutting in skin of ball of r. big toe; urine during whole proving scanty, dark, sometimes with red sediment in utensil.—24th, 7 a.m., 5 dr. brom. 1 (1 to 20). Soon pressure in r. tibia, in l. pectoral muscles, in base of l. fingers; flow of much thin saliva till 10 a.m. lasting some hours; the same after each dose. 8 a.m., pressure in frontal bone l. then r., in metacarpal bone of r. index, in r. thoracic wall under nipple, in l. instep, in l. knee, with weary pain deep in l. leg, extending through l. ankle to foot, in l. wrist, under l. clavicle, 9 a.m., in r. inner ankle; pressure and tired feeling in l. shoulder-joint, in sternum. 7.30 a.m., sweet taste in mouth. 8.30 a.m., remarkable salt taste on tip of tongue, lasts several m. 8 a.m., sharp stitches behind l. ear; smarting in borders of eyelids. 8.30 a.m., burning like pepper under tongue, also later, occasionally. 9 a.m., tearing in l. clavicle; much eructation of tasteless air, and much rumbling of air in belly. 4 p.m., boring in back part of crista ilii. 5.30 p.m., cutting in r. inner canthus, then in outer canthus; shooting in throat with lachrymation and flow of thin saliva; in anus much itching creeping as if something alive moved there.—25th. On waking pain in r. thoracic wall as above.—26th, 6.45 a.m., 10 dr. Immediately tickling in nose, as though he would sneeze, and feeling as if the centre of upper lip and neighbouring part of nose swelled, momentary. 7 a.m., pressure in frontal bone (with dazed feeling in sinciput), l. forearm, head of r. fibula, top of head, deep in l. leg, in front of l. ankle-joint, and in bones of r. instep, 9 a.m., in r. instep in bones, 4 p.m., in sternum, in r. ankle-joint, especially in inner ankle, 8 p.m., in r. shoulder-joint. 6 p.m. and repeatedly during e., in some spots of r. thoracic wall a feeling as if the wall were pressed from within outwards, not increased by breathing but by moving chest. 8 a.m., feeling of heat in front part of shoulder-joint; shooting in skin over zygoma, in tip of glans penis, 8.30 a.m., in skin of larynx, deep in l. ear, 10 a.m., in r. inner canthus, then on anterior tip of l. crista ilii, in l. hypochonder; raw feeling in throat. 3.15 p.m., severe shooting and tickling in larynx with lachrymation and feeling as though larynx were constricted. 10 a.m., tearing in 1st phalanx of r. 4th and 5th fingers.—27th. 9.30 a.m., shooting in larynx and canthi, and later; burning and shooting in under surface of tongue; shooting in l. hypochonder. 7 p.m., severe pain to l. of navel, deeply seated, aggravated by pressure. 8 p.m., severe cutting on dorsum of l. 4th toe; besides these many of the pressive pains mentioned on 26th.—30th, 6.30 a.m., 20 dr. Taste sharp, sourish, left in throat shooting, scraping, raw feeling lasting almost all d.; the same as 5th April. 7.30 a.m., shooting in glans penis and on sides of root of penis. 8 a.m., tickling in larynx with inclination to cough. 9 a.m., constrictive sensation deep in throat and dry cough, followed by coppery taste at back of palate, spasmodic sensation rising up from throat; in e. also dry cough and scraping in throat. 9.30 a.m., tensive pain in lumbar and dorsal muscles on r., increased by moving parts; sharp shooting deep in l. hypochonder. 12 noon, burning shooting on point of r. shoulder; tearing through l. 4th finger (and r. 3rd and 4th fingers e.), pressure in r. spermatic cord. 8

p.m., severe boring in l. frontal bone (also 31st); pressure as on 26th, sharp stitches in tip of tongue.—31st, 9 a.m., repeated scraping in larynx and dry cough; shooting in l. spermatic cord; in both hypochondria and deep in the sides of the abdomen, especially the l., along with open bowels, violent cutting increased by pressure, lasts ½ h. and goes off gradually; the last d. there appeared on back of l. hand, more towards thumb and index, many small red spots, which sometimes itched, went away and reappeared, some of them turned into quite small vesicles which dried up in from 12 to 24 h. and left a small red spot.—April 5th, 40 dr. Taste as on March 30th, same symptoms occurred: cutting in inner canthus and increased moisture there; gnawing in tibia and frontal bone, pressure in some joints, in pectoral and dorsal muscles; the pain in r. thoracic wall became more severe; shooting and scraping deep in throat; shooting in glans penis and spermatic cords; great pressure on dorsal vertebræ increased by motion, frequently by d., wakes him at n.; these symptoms continued partly during following d.; pricking on back of r. little finger, where some bright red little spots appeared which lasted all d.; obtuse pain deep in r. ear (also on 6th). 4.30 p.m., in front of lower maxilla and extending to r. a pain like gnawing or sawing, suddenly coming on and going off soon. 6 p.m., long stitches through penis to glans; pressure as from a blunt instrument in front of l. maxillary joint, deeply seated, in back of l. nasal cavity as if in Eustachian tube, the act of swallowing altered this sensation for a moment, lasted ½ h.; some inguinal glands on r. side are obviously larger, also on next d., without pain; some of following n. on awaking pain in r. thoracic wall; during all the proving urine diminished, though some d. much fluid was drunk; sometimes there was a red sediment on utensil; stools earlier and often softer than usual; the teeth became yellow. (*Ibid.*, xliv, 369.)

9. Hering proved B. on himself, wife, and others; manner not stated.

a. From vapour was observed,—sensation as if coryza were coming on, some pains between 6th and 7th ribs, and little appetite; while sitting reading in e., a sort of fading of sight, as if wind wafted away what was before eyes; became sleepy at unusually early h., but on retiring lay awake for hours; in m. slept as if stunned very late.

b. From 1st dil.,—feeling of contraction in chest, breathing restricted and very uncomfortable, with dry tickling cough (all 1st d., for an h. at a time on 2nd d.); at times slight pain in and over r. eye and some conjunctivitis (1st d.); slimy, rather loose stool, with much wind (2nd and following d.); severe aching in whole head for 2 h. (afternoon of 3rd d.); pain in r. chest, gradually extending to back and lasting some h.; while walking in street severe rheumatic, dull, constrictive pain, going to r. shoulder and arm, and then disappearing.

c. From 3rd dil.,—on l. side of nose, swelling and pain on pressure, as from matter forming there. From 5th, gums painful in m. From 6th, fulness in chest and neck, as if soft substance were between lungs and sternum. (*Neues Archiv*, ii, 119.)

10. Husemann.—*a.* From 3rd dil.,—in e. when alone, felt as if he must look behind him, and would then see some one or thing; stabbing

pain through r. side of head; pain in l. side of head, extending to l. eye; eyelids very heavy, can only open and keep them open with great difficulty; coldness of eyelids; burning of upper lip, which seems very smooth; eructations, tasteless; after smoking very severe pinching pains in abdomen, better from pressure, worse from rapid motion, when sitting bent and when pressing on abdomen pain felt only during expiration; continuous coryza (r. side), with stopped-up feeling, upper lip becomes sore and peels; raw, hollow, dry cough, with weariness; feeling as if inspiration was impeded by something in middle of chest (lasting 5 weeks); pain in r. lung; slight oppression of heart and palpitation; inspired air seems very cold; heat in feet; yawning commencing in m. and lasting all d., specially provoked by inspiration; much sleepiness; feels outer cold much, and shudders through whole body.

b. From 5th dil.,—pain on l. side of head; itching here and there on scalp; pain at nasal orifice, on pressure; hot uncomfortable feeling in face, especially below nose, chapping and tickling as from cobwebs there, at same time running of nose and lachrymation in r. eye; stinging, and later tickling at tip of tongue; persistent coryza as before, with violent sneezing; pain under r. shoulder and in knees; shuddering down back; chilliness, with oppression of head and pain extending to l. eye.

c. From 6th dil.,—on 2nd d., vertigo and tendency to fall backwards; pain in two teeth; coryza as before; very sore and raw in throat. Without note of time,—hoarseness; cough, brought on by scraping tickling; yawning, with heat in face and nose. (*Ibid.*)

11. Lippe. From 3rd dil.,—general trembling on 1st and 2nd d.; tension in l. cheek towards chin, at times with pressing pain extending to l. ear (2nd d.); gurgling and rumbling in abdomen (4th to 6th d.); passage of light yellow fæces, preceded by cuttings and gurglings in abdomen, also eructations as from rotten eggs (5th to 7th d.) Much out of sorts for 5 d. (? afterwards). (*Ibid.*)

12. Neidhard. From 1st dil.,—weight in forehead in sun-heat, disappearing in shade. (*Ibid.*)

II. *Poisonings.*—1. A daguerreotypist took ℈j of B., with suicidal intent. The immediate symptoms were spasms of muscles of deglutition and respiration, with dyspnœa. Then followed intense heat in stomach, great anxiety, restlessness, and trembling of hands. Pulse was rapid and tense, and breathing hurried and rattling. No nausea or vomiting save as excited by emetic remedies. Skin gradually became cold and clammy, mucus flowed freely from nostrils, and saliva from mouth. There was great and distressing agitation, skin in many parts was bluish, countenance haggard and eyes sunken. Pain in abdomen moved gradually lower down. No loss of consciousness. Death by collapse in 7½ h. Mucous membrane of stomach was found highly injected, softened, ecchymosed in spots, and covered with black deposit resembling coarse tanned leather. Similar appearances were presented by duodenum. Peritoneum was highly injected in its upper half, and tinged of a reddish yellow. (Snell, *N. Y. Journ. of Med.*, N. S., v, 170.)

2. A young man inhaled vapour from 3 lbs. of B. He was reported

to superintendent of laboratory as dying, and found perfectly asphyxiated. "The corrosive action of the B. was such that the glottis had closed with a spasm, and did not seem to be willing to yield. I drew out the tongue, and the air would fairly whistle through the glottis, and then the spasm would shut it down tight again." Steam was then directed into his mouth. "It had the effect. The spasm relaxed, and he was subsequently treated with ammonia vapour, and sent home to keep company with the tea-kettle. He assured me that until 12 that n. he did not dare leave the kettle for 2 m. The subsequent inflammatory action was easily controlled." (DUFFIELD, Ranking's *Abstract*, xlvi, 116.)

3. FOURNET gave to some patients affected by chronic arthritis at first 2 drops of B. suspended in mucilage daily; this was raised by 2 drops daily to 60 drops. Mucilage was always 4 oz. Two drops caused only hot sensation in back of palate. In a little stronger dose patient felt in 15 m. itchings in hands and feet, and shocks in feet and near knees; 15 m. later borborygmus and colic. During n. sensations in hands and feet now and then repeated. As dose became stronger sensation of heat in chest, with attempts to vomit, but no vomiting. At first peculiar sensation of weakness and fatigue in chest accompanied these efforts, but when patient became habituated to preceding phenomena these symptoms disappeared. The patient who had these itchings in fingers was always the most sensible to effects of brom. Fifteen m. after 10 drops had sensation as of great weight on stomach, with desire to vomit, colics, and borborygmi; 1 h. after feeling of tightening from shoulders to beneath elbow on each side, as if compressed in vice; lancinating pains in fingers and circumference of head, but these symptoms disappeared and he enjoyed a remarkable degree of calm. Symptoms renewed every d. after medicine. At length there was added feeling of shooting pain round orbits. (*Bull. de Thér.*, Févr., 1830.)

4. If over 10 dr. of a solution of 1 dr. of B. in a pint of distilled water be taken daily for several weeks it will almost certainly produce membranous dysmenorrhœa..... I have also seen from over-dosing with B. a violent headache ranging from the frontal sinus down to the base of the brain, with marked increase of pulse in volume and frequency. (W. A. GORDON, M.D., *Chicago Med. and Surg. Journ.*, Aug., 1877.)

III. *Experiments on animals.*—1. After a number of experiments on dogs and rodents the following results were obtained:—Bromine introduced by drops into the buccal cavity of a living animal, where owing to the heat of the body it rapidly assumes the gaseous form, acts as a violent irritant on all parts of the m.m. with which it comes in contact; there occur copious secretions of mucus and saliva; in a similar irritant manner it acts on the vascular nasal m.m. and thence backwards on the conjunctiva and lachrymal gland; hence the flow of watery, and, in course of time, purulent, mucus from nose, sneezing, redness of conjunctiva (frequently observed) and watering of eyes. In like manner there occur irritation and inflammation of air passages and of lungs. Usually the inflammation of the m.m. in the larynx and trachea has an exudative character, and like the irritation of these parts caused by chlorine and ammonia-gas it tends to form pseudo-membranes; sometimes preceding the action of the brom. on the air-passages there occurs a transient spasmodic closure of the glottis, hence the preliminary violent suffocative phenomena often observed. As consequences of the irritation of the respiratory organs there were observed: difficult respiration, sometimes slowed, suffocative, sometimes quickened, superficial, combined with sneezing, obstinate cough, that generally has a croupy sound (in rodents there was no cough), and increased mucous secretion, hoarse mucous râles during respiration. Death generally occurred in a state of great weakness, from inflammation or paralysis of lungs. The *P.M.* showed fauces and respiratory organs inflamed. The m.m. of the upper part of the intestinal canal was generally slightly irritated. (HEIMRDINGER, *op. cit.*)

2. A gold fish, placed in mixture of 1 part saturated solution of B. and 2 parts water, had its whole surface immediately corroded, and life appeared to be extinct in

less than 1 m. Another fish placed in water tinged faintly yellow by B. had respiration quickened and apparently rendered more laborious. This animal showed no other signs of excitement and died in 1 h.; its surface was corroded; gills of both were congested. (GLOVER, *loc. cit.*).

3. Four drops were placed on bill of pigeon; bill was corroded where brom. was placed; violent excitement followed by apathetic state; death in 2 d., owing to corrosion and irritation of air-passages produced by inhalation of fumes. (*Ibid.*)

4. Four drops were introduced into external jugular of strong male rabbit. Immediately it shrieked; respiration became laborious; pupils were dilated; heart's action quick and violent, but ceased after a few irregular beats; two or three convulsive struggles; animal died in 70 seconds from performance of operation. On opening chest immediately, irritability of heart was found to be destroyed. Substance of heart corroded near apex; several marks of corrosion in lung. Blood in r. ventricle and pulmonary artery was coagulated and corroded. Contractility of voluntary muscles remained. (*Ibid.*)

5. Middle-sized bull-and-terrier bitch, strong and active, had 1 oz. solution (containing 2½ minims of B.) injected in jugular; panting and tumultuous action of heart, spasm of opisthotonos followed by terrific yell and escape of urine and fæces. When spasm had subsided, having lasted 1 m., it gave several heavy inspirations, and heart's action was felt very feeble and irregular; pupil was observed greatly dilated. General tremors of muscles occurred before death, which was preceded by deep inspiration, and took place within three m. from injection. Voluntary muscles contracted strongly when cut. Heart was gorged with black coagulated blood in r. cavity and with red blood in its l., and was irritable 5 m. after death. Lungs collapsed on opening chest, and appeared healthy. (*Ibid.*)

6. Fox-hound had injection into jugular of ½ oz. saturated solution of B. Seized with fit of panting for 2 m. After this respiration and circulation both quickened. In 17 m. coryza and sneezing, then rigors came on. During 1st h. passed fæces repeatedly. For some h. continued feeble, as if suffering from pulmonary affection, but eventually recovered. On second occasion had 30 drops of B. introduced into jugular of side not operated on before, and, as fluid did not descend, but coagulated blood in vein and destroyed surrounding parts, 1 oz. of saturated solution was thrown in afterwards. Animal gave loud yell; heart's action became violent and irregular, and respiration of same panting character as before. Then violent movements, followed by prostration and manifestations of suffering. Seventeen minutes after operation he made efforts to vomit, and began to void blood by mouth. Pupil greatly dilated. Appeared to possess perfect consciousness. Died in 1¼ h. after operation, having repeatedly passed blood by mouth, and voided urine and fæces; death preceded by great feebleness of heart's action and muscular debility. After death, lungs presented splendid appearance of congestion, and several apoplectic-like spots; slight pressure caused blood to flow from almost every part of pulmonary tissue. Bronchi contained frothy blood, and in several places were occupied by strings of coagulated blood. On cutting near border of r. lung, there appeared a vessel filled with yellowed and corroded blood; and around, pulmonary tissue contained much blood. Stomach contained ½ pint grumous blood; mucous coat much injected and presented several large ecchymoses, one of which, near the cardia, appeared to have been chief source of blood. Rectum showed marks of vascularity. (*Ibid.*)

7. Sixty minims of B. were poured down flexible tube into stomach of strong female cat. No effect for 2 m.; then respiration and circulation greatly quickened; inspiration somewhat prolonged, but expiration made with rapidity, and accompanied by a wheeze. Saliva began to drop from mouth, eyes to water, and in 4 m. clear fluid ran in constant stream from mouth and nose. About 5th m., animal began to struggle violently, and made repeated efforts to vomit, but unsuccessfully. Heart's action became very irregular, and after terrible convulsions death took place 17 m. after injection. Mucous membrane of stomach could be separated in rose-coloured flakes. Lining membrane of gullet was as if filled with a minute red injection. Appearances of corrosion extended to air-passages and lungs. Peristaltic action of intestines was stopped, and small intestines had completely lost their tonicity. (*Ibid.*)

8. Injection into stomach of terrier of ʒij pure B. No emotion for 7 m. Then drew his belly along ground, vomited matter evolving fumes of B. For 1 h.

symptoms were of this character; occasionally fæces were passed, and there were frequent tremors, cries, and other expressions of pain. Respirations heavy and heart's action feeble. Death 5½ h. after operation. Inspection some h. after. Lungs had several large spots towards their roots, and were infiltrated with bloody serum. Blood was dark coloured and coagulated on both sides of heart. Peritoneum contained dark-coloured semi-fluid matter, feebly acid, and had marks of inflammation. Greater part of stomach had been dissolved, leaving only some blackened shreds attached to duodenum, and another portion at cardia, which might amount to a third of organ. This part was marked with long black striæ, and presented a space near entrance of œsophagus where mucous membrane was deeply injected. Mucous membrane of this remaining part was gelatinised; remaining peritoneal coat was tinged blue, somewhat more of it was left than of the other coats. Great part of lining membrane of gullet was reddened and thickened. Duodenum and small intestines quite different in appearance to stomach. Duodenum yellowed internally by poison, and retained strong odour of B., which was not the case with stomach. Mucous membrane of duodenum, though thickened, felt harder than natural, and rather brittle, but was covered with large quantity of matter which appeared to be secretion of bowel acted on by poison. On cutting jejunum or ileum across, walls of tube did not collapse. Mucous membrane of these intestines was much thickened, and in superior portion had a white and granulated aspect. At inferior part of small intestine, mucous membrane was thickened and softened, and began to exhibit traces of vascularity, which were very distinct in sigmoid flexure and rectum, where there was little or no corrosion. Colon was empty. Lower part of liver was corroded and of bluish colour. Membranes of brain were vascular. Careful analysis of heart and contents showed B. to have been absorbed into blood. (*Ibid.*)

9. Ten minims pure B. into stomach of male rabbit. No effects followed. Three d. after, was poisoned by prussic acid, when mucous membrane of cardiac portion of stomach was found reddened, somewhat thickened and softened, and dotted with numerous minute white spots of corrosion. (*Ibid.*)

10. Another rabbit had 10 minims. Three h. after operation respiration was wheezing, and saliva flowed from mouth. Got well, was killed after a week by prussic acid. Ulcer size of shilling, of triangular shape, found near cardia. (*Ibid.*)

11. Two oz. saturated sol. into stomach of rabbit. Death in 5 m. Had tetanic convulsions, peculiar rapid movement of fore-legs; after this pulse slow and feeble, respiration slow and forcible, pupils at first contracted, afterwards dilated, salivation just before death. After death: bloody froth in mouth and air-passages; several apoplectic spots towards roots of lungs; heart not irritable 3 m. after death; blood dark and fluid in both cavities. Mucous membrane of stomach was of a white and corroded aspect over greater part of organ, deeply injected at depending part. Same appearances extended to duodenum. Epithelium of stomach came off in washing the organ. (*Ibid.*)

12. One oz. of solution to rabbit. Death in 15 m. Loss of power over voluntary muscles; breathing embarrassed, frothing at mouth, violent convulsions. L. side of heart contained dark clotted blood. In both these cases the voluntary muscles contracted, and peristaltic action continued. No evidence of absorption of B. was obtained from analysis of organs. (*Ibid.*)

13. One oz. solution into stomach of rabbit. 5 m. later another oz. 1 h. after, had coryza and salivation, at 6 p.m. Next m. at 9, was found on his side, eyelids closed, respiration slow and forcible with slight wheeze; pulse scarcely perceptible; fore-legs regularly moved towards head, and then brought back; some flow of saliva; animal heat low; death at 5. No corrosion in stomach, which was contracted on a little semi-digested food. Cardiac portion of deep purple hue, separated by distinct line of separation from pyloric portion, which was pale and œdematous. Epithelium was removed, and mucous membrane over cardiac portion was occupied in several places by irregular patches of ulceration. The same disorganisation was seen in upper part of small intestines. Blood was coagulated in abdominal veins and ascending cava; heart pale and empty. Blood gave evidence of presence of poison. (*Ibid.*)

14. Terrier, five months old, had 3 oz. solution of brom. thrown into stomach, penis secured by ligature. 3 m. after he vomited much frothy mucus and a little semi-digested food, exhaling vapours of B. Repeated vomiting of bloody mucus and

purging succeeded for 1 h., with great uneasiness. After this he lay in state of great feebleness, but did not appear to have pain. ½ h. after operation, ligature was removed. Forthwith urine was passed containing B. Urine passed 4 h. after operation contained none. Next d. seemed well. Same dose given; similar effects; less vomiting. D. after, same dose; could not retain his food. Two d. after 3rd dose, completely prostrated; respirations abdominal; heart slow and feeble; pupils dilated; salivation; body cold; death preceded by stupor and frothing at mouth. Stomach showed several mottled erythematous patches. Distinct line of separation between cardiac and pyloric portions; former presented appearance of softening, and was yellowish except in site of patches described. It had lost its epithelium in several parts. Pyloric portion was red, contracted, and rugose; lungs, slightly affected with tubercle, were infiltrated with bloody serum and partly with purulent secretion. Black coagulated blood in both sides of heart; no brom. on analysis of blood and organs. (*Ibid.*)

15. Dog had 2 oz. of solution B. introduced into stomach. Passed fæces almost directly. In 1 h. respiration was affected; salivation, coryza, and retching ensued. About 3rd h. symptoms had subsided. He had 2 oz. every second or third d. for a month, *i. e.* time was given for irritation of each dose to subside. He got very thin, was much purged, and acquired great appetite. (*Ibid.*)

16. Eight drops were placed on tongue of small dog; it made efforts to reject poison, fumes of which were disengaged from mouth. In a few m. respiration doubled in rapidity, inspiration accompanied with mucous rattle, and expiration with wheezing and hiccup. Respirations gradually got slower, and heart's action irregular. Passed fæces repeatedly, and retched violently. Mouth and eyes watered; pupils dilated; animal, after these symptoms had subsided (after lasting 1 h.), became greatly depressed. (*Ibid.*)

17. Bromal hydrate irritates eyes and produces running at nose. It has a narcotic action like chloral, but causes more excitement and less profound sleep. It has a more powerful paralysing action on the heart, and is poisonous in smaller doses, than chloral. It generally causes salivation, and profuse secretion from the bronchial mucous membrane, accompanied by congestion. In toxic doses it produces cyanosis, dyspnœa, and death with convulsions which are probably due, in great measure at least, to clogging of the respiratory passages. (BRUNTON, *op. cit.*)

18. The result of a series of experiments on rabbits, guinea-pigs, and dogs, in which the hydrate of bromal was subcutaneously injected in doses varying from about 2 to 15 gr., were, with slight variation in regard to time of appearance, as follows:—restlessness and contraction of the pupil occurred immediately after the injection; in the course of a few minutes the oral and nasal mucous membranes became hyperæmic; the animal then twinkled the eyelids, keeping the eyelids a moment closed, and, though never falling into a sound sleep, often gave a sudden jerk as if waking out of a dream. In several cases there was a flow of the secretions from the mouth and nose. The animal then became anæstheticised, the respiration very frequent, and dyspnœa and cyanosis followed. The pupils became expanded, the movements of the animal uncertain, and the hypnotic effect more pronounced. It squatted down and rolled over, recovering its former position after a few seconds. Pinching and pricking were not felt in any part of the body, though reflex action occurred. Dyspnœa became more violent, and the animal died in convulsions; or the respiratory movements and pulse gradually sank till death took place, usually preceded by convulsions. Anæsthesia generally supervened with medium doses a considerable period before the commencement of dyspnœa, but with large doses coetaneously, or even subsequently to the occurrence of the dyspnœa. In accordance with the dose administered, the heart after death was either relaxed with dark red coagula in the cavities, or tetanically contracted. (STEINAUER, *Pract.*, v, 117.)

19. STEINAUER considers (*Centralbl. f. d. med. Wissensch.*, 1874, No. 26) that the experiments hitherto made to determine the question whether in the preparations of bromine the B. exerts a specific action, are insufficient, because in them the difference in the action of bromide of potassium and of sodium has alone been considered. In his researches, instead of these salts he used hydrobromic acid, bromated acetic acid, especially mono-bromo-acetic acid, the bibromised being less adapted on account of easy destructibility. Bromo-benzol and bromo-benzoic acid, hydrobromic acid, and the bromated acetic acid (as well as the salts of the latter), proved themselves to be

poisonous. In doses of from 7 to 15 gr. they proved fatal to rabbits in ½ h. Hydrobromic acid in a few m. produced distinct effects on heart and respiration. At first frequency of pulse fell to some extent, whilst respiration increased in frequency, and the animal at the same time became more quiet. After a little while voluntary power was lost, and soon after there was diminution and ultimately complete loss of reflex activity. Then occurred irregularity in inspiration and cardiac beats; still later remarkable diminution of both, and death, preceded, in warm-blooded animals, by convulsions. *P.M.* examination showed arrest of the heart's action in diastole, and neither mechanical nor electrical excitation, directly applied, called forth more than a few slight contractions. The sequence of symptoms, in poisoning with the monobromised acetic acid, was very similar, except that the heart was arrested in systole; artificial respiration proved useless, and in no respect altered course of symptoms. Neither section of vagus nor paralysis of terminal branches of cardiac nerves by nicotine prevented fall of pulse in frequency, and S. hence concluded that the vagi were not acted upon by the poison. From results of other experiments he is inclined to think that it causes paralysis of cardiac muscle with coincident affection of excito-motor cardiac centre. Mono-brom-benzol and mono-brom-benzoic acid, in both of which the B is strongly combined with the other molecules, exhibited a mode of action that differed little from the above. (*Ibid*, xiii, 272.)

20. *a.* GLOVER made an injection of hydrobromic acid into jugular of terrier. Symptoms:—strong, quick, and irregular action of heart, curious succession of fits of panting, at intervals of 3 or 4 seconds, lasting each time for 10 or 12 seconds. This went on 20 m. After 2 h. was quite well.

b. Injection into stomach of ℥ss of solution (90 minims of B. in 2 oz. water being converted into hydrobromic acid). Effects:—restlessness; quickened respiration and circulation; great uneasiness; sharp cry now and then; loss of power over voluntary muscles; discharge of urine; slight convulsions; death in 10 m. *P.M.* Lungs congested, infiltrated with frothy serum, with a few apoplectic spots in their tissue; bladder full of urine; whole mucous membrane of cardiac portion of stomach showed uniform grey erosion, was much softened, and had epithelium removed. (*Loc. cit.*)

21. Bromoform was introduced by same into stomach of rabbit, and produced quickened respirations, short dry cough. Heart's action quick, at first irregular, then very feeble. A few convulsive movements of limbs, cough changes to husky expiration and death after large dose. After death voluntary muscles contracted strongly; heart without motion, did not contracted when irritated. Blood in both cavities somewhat frothy and mixed with large masses of coagula. In l. ventricle, mass of clear coagulated lymph. Lungs in many parts light purple colour, but lower border almost black. Congested spots scattered everywhere. Towards lower part the tissue broken down in many parts, and saturated with blood. Bronchi contained much frothy serum, and their lining membrane was deeply injected. Nervous system showed no morbid appearances. (*Ibid.*)

Ammonium bromatum, bromide of ammonium, NH_4Br.

I. *Provings.*—1. A. M. CUSHING, M.D., Feb. 20th, 1868., 7 a.m., took 5 gr. of 1_x trit.; 9 a. m., 5 gr.; 12 m., 5 gr.; 8.15 p.m., 5 gr.; 10 p.m., 10 gr. 21st.—A sudden short cough when rising from bed in m., from sensation of mucus in throat. 7 30 a.m., took 10 gr.; it is a warm morning, and in the house I am troubled more with cold than I have been at any time during the winter; have to warm my feet even in a warm room. 10 a.m., biting sensation on l. side of tip of tongue. 1 p.m., stringy, tasteless mucus in mouth. 2.15 p.m., took 10 gr.; 8 p.m., 10 gr.; 10.45 p.m., 10 gr. 22nd.—7.30 a.m., 10 gr.; feet cold; 9 p.m., 10 gr.; 10.30 p.m., 20 gr.; at times during d. felt as if band were tied around head above ears. 23rd.—8.30 a.m., 15 gr.; feet very cold, head feels tied as before, pressing hardest just above ears; 3 p.m., 10 gr. At 11 a.m. and 3 p.m., a sharp, twisting pain just above crest of ilium, r. side; e., feet cold; 10 p.m., 15 gr.; sudden cough; the cough and inclination to cough come suddenly. 24th,

8 a.m., 20 gr.; 3.30 p.m., 20 gr.; 11 p.m., 20 gr.; during e. sudden, hacking cough, with watery discharge from the nose; 12.30 a.m., 20 gr. 25th., 8 a.m., 20 gr.; feet cold, legs ache, accumulation of mucus in posterior fauces; fauces and top of tongue for half its length feel as if they had been scalded; accumulation of mucus in fauces, stinging in fauces, with inclination to cough, but relieved by sneezing; feet cold; repeated sharp pains in back of r. leg, midway from hip to knee; 12 m., 20 gr.; in 20 m. sudden urgent desire for stool, with loose stool. 26th.—Tickling in throat in m., with inclination to cough; tongue very sore as if burnt; cannot talk or read without pain; mouth filled with saliva; tickling in throat; 11.45 p.m., 20 gr. 27th.—Tongue stiff and sore; irritation of throat with inclination to cough; tongue sore all d.; some pain in posterior of l. leg, midway from hip to knee; tightness across chest with pain in lungs; inclination to draw long breath; 12 m., when walking, had to hold mouth open on account of heat in throat and lungs. 28th.—In m. tongue dry, sore, and stiff. 9 a.m., 20 gr.; irritation of fauces with desire to cough; stomach feels bad; food does not digest, can taste it several h.; pain in left leg gone, but is in same locality of r. leg; an old hæmorrhoidal tumour which had not appeared for some time returned, and was quite hard, sore, and very small, but soon disappeared. 29th.—In m., tongue smarts severely, as if just burnt; inclination to cough from low down in the throat; distress; sore, lame feeling in the stomach; white, thick, mucus in throat; sudden, deep cough; swallowing anything cold causes distress entire length of œsophagus and into stomach; flashes of heat over body, as if perspiration would come on. 11 p.m., terrible distress in upper part of epigastrium; could not sit still,—had to walk the room; during this time much belching of wind; pain went through to back and extended to both hypochondria; could scarcely get breath; pain was so severe that it produced perspiration over whole body; took a dose of cuprum met., which wholly relieved pain in ½ h. March 1st.—In m., mouth feels as if just burnt; tickling on both sides of throat, causing deep cough; distress in stomach. 8 p.m., something seems to rise from pit of stomach, almost stopping breath, causes faint and very disagreeable sensation, partially relieved by raising wind, tasting of food eaten several h. before; head feels as if band were around it. 2nd.—In m., mouth feels as if just burnt; stomach easier; sudden inclination to cough, from tickling in both sides of throat just below tonsils. During afternoon and e. sensation of fainting or suffocation, beginning at epigastrium and rising on both sides of sternum to the throat, causing him to sigh and walk around the room; feared he might die; pain under middle of l. clavicle, above ears; inclined to be chilly, with flushes of heat; occasional belching of small quantities of wind, slightly sour; sensation of hot air passing up throat, on r. side, though stomach feels cold; pain around both eyes, into head (took 1 dose of carbo. veg.). Back and feet cold in a warm room: mouth filled with white, frothy, stringy mucus. 3rd.—Mouth feels as if burnt; while eating, a sensation in stomach similar to that experienced last e.; pain around orbits; r. eye full of white, stringy mucus; much redness between orbit and inner canthi; looks as if a membrane were growing over it (pterygium); sharp pain in l. side of

head, near eye; feet cold. 11.30 a.m., feeling over r. kidney as if something were pressed hard against it, relieved by pressure, but leaving a pulling sensation; sudden cough, from tickling in throat just below tonsils; stomach feels badly in afternoon, but easier than on previous e.; eye smarts in e., but not during d. 4th.—R. eye sore; lids swollen; eye full of white, stringy mucus. During afternoon and e. cough is deep from tickling in throat as before, causing pain in tonsils. R. eye quite sore; feels large, and smarts; have to wear shade in e. to read or write; sore spot over r. kidney; feet cold in warm room; fauces slightly sore. 5th.—Both eyes sore, very red; lids stuck together in m.; throat sore; fauces dark red and congested; feet cold in warm room; occasional, sudden cough, with expectoration of white mucus; throat sore; tongue feels as if burnt. 6th.—Tongue sore on top, both sides and tip; throat sore,—looks mottled, as if diphtheritic deposits were commencing; frequent sensations (which occur daily), as if something were rising from stomach, but not like wind, causing faint sensation, but disappearing in a moment. 10 p.m., sharp, cutting pain in stomach; throat sore, worse on l. side; slept but 2 h. last night; have been in wind all d.; eyes much better. 7th.—Was out most of the n. (6th), still my eyes and throat are much better, and I coughed less. 8th.—Close application to books last e. did not cause any feeling of pain in eyes. Throat is well, and no desire to cough. 10 p.m., took 25 gr. 2nd trit. 9th.—In m., eyes red and sore, with white mucus in corners; l. eye worse. Throat sore, with expectoration of white, sticky mucus, with similar discharge from nose. 6.30 a.m. and 2 p.m., took same. During e. tickling in throat. Nose stopped up, then discharge of clear fluid. 11.15 p.m., same dose. 10th.—Eyes feel sore, as if sand were in them; mucus on eyelashes; no discharge from nose. 11 a.m., tickling in throat, with inclination to cough. During e., tickling in throat; mostly on sides, causing him to cough suddenly. Throat smarts, nose stopped up; fauces look red. 11th.—In m., mouth feels as if burnt, throat sore; sudden cough, then a deep cough; pain in l. side of head, near eye, which occurs daily. In e., eyeballs feel large and sore; sudden, spasmodic cough from tickling in throat; pain in both tonsils; pain in right lung, lung feels cold inside; an occasional discharge of watery fluid from l. nostril; peculiar pain in head, cannot describe it. 11 p.m., took 75 gr. of 2nd. 12th.—Eyes smart; tongue feels as if burnt, worse near the tip. 3 p.m., r. eye feels as if bathed in hot water. Eyes do not feel any worse from not having slept last n. 13th.—Was called up at 3 a.m. Eyes stuck together; mouth full of white, sticky mucus; eyes feel badly to-day, though I was not awake but 1½ h. last n.; during d. sudden inclination to cough from tickling in throat; pain in head (daily), just back of the eyes, worse on l. side; in e. eyes feel very large, with constant blur before them. 14th.—Sharp pain in lungs, worse in upper portion of r. lung; tickling in throat, with cough; 10.30 p.m., took 100 gr. of 2nd. 15th.—In m., mouth feels as if badly burnt; sharp pain in both lungs, and, during forenoon, pain seemed to be mostly in pleuræ. All forenoon felt as if cord were tied around r. leg midway between hip and knee, making him limp, causing pain. In afternoon pain in r. leg disappeared, and was

felt below knee in l. leg. In e., it was in ankle, then in l. foot, soon passing away, with inclination to cough returning. 16th.—Eyes and fauces sore; mouth feels as if burnt; expectoration of white, sticky mucus; l. ankle and foot lame; almost constant desire to cough; sense of suffocation from lungs, which causes him to move around from fear of suffocating. 17th.—Frequent constrictive pains and tightness across chest; frequent cough; very sudden desire to cough, coming so suddenly by tickling in throat, it strangles him and almost arrests breathing; expectoration of gelatinous mucus. 18th., 7 a.m., took 50 gr. 9 p.m., sensation in r. shoulder, as if pressed by a weight. 19th.—Throat filled with white, sticky mucus; have to hawk it up, causing smarting of fauces. 7 a.m., took 50 gr. of 3rd trit. 20th.—Expectoration of white, sticky mucus; feet very cold in warm room, causing legs to ache. 9 a.m., same dose. In e., feet cold; throat feels sore; pain in r. side of head, near eye, as if nail were driven into it; every e., eyelids droop, and it is difficult and painful to raise them. 10 p.m., 100 gr. of same. 21st.—In m., mouth and fauces full of white, sticky mucus. 7 a.m., 25 gr. of same. Throat much irritated. 8 p.m., sharp pain in lower portion of l. ear, extending to cheek and neck; throat sore; preparing to swallow is painful, but act of swallowing is not. 22nd.—In m., mouth very dry; during d. throat filled with white, sticky mucus, streaked with blood. 23rd.—Expectoration of white, sticky mucus, and occasionally blood. (*Trans. of Amer. Inst. of Hom.*, 1870, p. 354).

2. A student took, at 7 p.m., 40 gr. in ℥j of water. In 3½ h. he experienced slight excitement of circulation; tightness at temples; flushing of face; and prickling sensation in skin. Next d., at 2.45 p.m., took same quantity by enema in mucilage of starch. In 45 m. had some excitement of circulation as before, with slight nervous exaltation such as he has after taking wine. (CLARKE and AMORY, *On Bromide of Potassium*, Boston, 1872.)

3. Another student took same dose in a claret glass of water on an empty stomach at 10 p.m. Pulse was 80; in 15 m. 88; in 30 m. 80 again. In 40 m. vascular excitement and exhilaration as after taking morphine; this gradually decreased, and was lost in a fit of drowsiness; after 1¼ h. he found himself nodding, and retired. Towards e. next d. he had uneasiness in bowels; on following d. decided diarrhœa set in, and lasted 12 h., without griping or distress, though abdomen was distended with flatus. He never had diarhœa, and could see no cause for this attack but the drug. On another occasion, took 20 gr. on a full stomach before retiring; again, within ½ h., felt as if he had taken opium; dreamed of trying to pass urine into a bottle, but being unable to do so on account of being constantly in a crowd of men and women. (*Ibid.*)

Kali bromatum. Bromide of potassium, K Br*.

I. *Provings.*—1. *a.* In daily doses of 1 gr. gradually increased,

* "One set of observers believe that all the effects of KBr are the result of the potassium action. This explanation, however, is no longer tenable. The specific action upon the brain and spinal cord, and upon the reflex irritability of the nerves of the palate, as well as the eruption upon the skin, can now positively be explained as

caused increased stools and urine, headache, disgusting eructations, inclination to vomit, oppression of chest, cough, and a long-continued hoarseness. These symptoms were most marked after taking 37 gr. in 9 d.

b. With a hot iron he burnt his arm in two places the size of a shilling, removed the epidermis and sprinkled on the raw surfaces 10 gr., adding a few drops of water. The pain lasted 1 h. In afternoon the part inflamed, there occurred a violent drawing burning pain that spread all over the arm, and in the night pain was very great, but declined towards m. Pulse in n. 85 to 90. At 11 a m. next d. he had a loose stool, and 3 more during afternoon and n.) when it became watery. Urine much increased, then slight short cough in e. with dazed head; at 11 p.m. violent headache, especially in occiput; at 3 a.m., woke with very great nausea and efforts to vomit, vomiting of mucus, salt taste in mouth. Headache increased, but pulse became full and slow, 65 to 70. He fell asleep and awoke after 2 h., with headache and cough. In m. of 3rd d., 2 soft stools; the cough lasted several d.

c. He made a blister with cantharides, and removed the epidermis; he then sprinkled on the raw surface 10 gr. of brom. of pot. No inflammation occurred. Next m. he had diarrhœa. (HÖRING, *loc. cit.*)

2. HEIMRDINGER took fasting ½ dr. in ½ oz. water. This caused increased secretion of saliva and mucus in mouth; feeling of heat in abdomen; after some h. great vertigo and confusion of head, dilated pupils, repeated eructations, two slight attacks of colic, discharge of flatus, slight oppression of breathing; after dinner tiresome stomach-ache; in afternoon, slight vertigo, weariness, thirst, increased urination. 2 d. after this he took 1 dr. distributed in 6 doses during the d. Quickened pulse, vertigo, feeling of heat in abdomen, frequent rumbling in bowels, eructation, discharge of flatus. In afternoon, headache, thirst, two normal stools. Next m. vertigo, stomach remained weak several d. From 10th to 26th March he took 4 gr. daily, from 26th March to 8th April, 8 gr. daily. Nothing occurred except increased urinary secretion. (*Op. cit.*)

3. *a.* LABORDE took in 2 doses at ½ h. interval 15 grammes (1 oz.) dissolved in a glass of eau sucrée; some m. after, sensation of fulness and heat in epigastric region, nausea followed by repeated eructations with a distinct salt after-taste, excessive secretion of saliva, spitting, followed by dryness of mouth lasting a long time, and requiring him to drink frequently 1 or 2 h. afterwards, obscuration of vision, heaviness of eyelids, as though the eyes would be forcibly closed, a sort of general stupefaction irresistibly leading to sleep. This sleep is a sort of heavy somnolence, often interrupted by jumping up, though there are no actual dreams, or the dreams do not take definite shapes, it is rather a nightmare of indefinite character. The sleeping sometimes is indefinitely prolonged and waking is extremely difficult; the will seems lost

depending upon the bromine of the compound. On the other hand, the effect upon circulation, respiration and temperature is almost entirely due to the potassium" (NOTHNAGEL and ROSSBACH).

as if ideas and self-consciousness could not be regained, spee
cult, lazy, and does not get its usual intellectual aliment, a p
ness came over him, profound indifference and almost disgt
On attempting to get up and walk, there is felt a singul
characterised chiefly by a sense of emptiness around and
which he is afraid of placing wrongly; the ground seemed to
and the sense of its resistance is lost, the walk is staggering an
impossible, at least he is forced to give it up. There is a pr
tuseness of sensibility, especially with regard to reflex actions.
the foot is not followed by its usual effects, pinching is felt
the sense of touch of the hands is altered, so that objects are
with firmness, there is a general feeling of chilliness of the e
The pulse became slower and compressible as if extinguish
duration of this action is 15 or 18 h., and all that happens to
in the way of moral and physical impressions is very distinctl
bered. After the chief phenomena have ceased there remains
of head.

b. Took 6 grm. in 2 doses at ¼ h. interval. Salt ta
increase of saliva, eructations without nausea, some pinching i
if stomach is empty, not if containing food; a feeling o
and calm, inviting to sleep, which speedily follows if lying do
excitement generally accompanied by erection and emission
after this the sleep becomes profound, more or less troubled wit
great difficulty of being awakened, when awake muscular f
bruised feeling in limbs and loins; on commencing to walk
steps are shaky and undecided but this soon passes off; along
increased saliva there is also an increase of the nasal mucus, p
sneezing, this is transient; increased urinary secretion; the
of semen does not take place if the bladder be emptied; the
movements are rendered slower than normal, the pulse too i
the reflex sensibility of the fauces is abolished, but not its tac
bility. (*Gaz. Méd.*, 1869, p. 554.)

4. G. P—, æt. 20, medical student, took at 4.30 p.m. 5 gr
37·2°, at 4.45 p.m. 5 grm. Salty taste, pressure in epigastric
sensation of warmth, eructations. 5 p.m., p. 84, feeling of
head and eyelids, the eyes look glazed. 5.15 p.m., p. 80, feelin
cular fatigue and weakness, weariness, yawning. 5.30, temp. 3
thinking power slow. 6 p.m., p. 66, dulness of head, touch
causes no reflex actions. 6.30 p.m., p. 70, feeling of prostratic
plains of fatigue and dulness of head when walking; tendenc
rhœa and urging to urinate; in e. several diarrhœic stools.
Arch. f. Exp. Phy. u. Pharm., 1876, vi, 13.)

5. G. E—, medical student, æt. 21½, took at 3.15 p.m. (ter
37° and p. 80) 5 grm. Salty taste. 3.25 p.m., feeling of w
stomach, 5 grm. 3.30 p.m., p. 80, flow of saliva. 3.45, p. 84
eructation, feeling of pressure in head. 4 p.m., temp. 37°, p. 8
of vertigo and prostration, touching velum palati and posterior
causes no reaction. 4.15 p.m., dryness in mouth. 4.30 p.
complete anæsthesia of palate and pharynx. 5 p.m., tem
p. 68, soft; soft stool and copious urination; rumbling in

5.30 p.m., p. 64, feeling of prostration, frequent spitting of viscid saliva. 6 p.m., p. 68, touching palate causes slight retching movements, muscular weakness, confusion of head. 6.30, p. 72, soft and small; whilst walking is tired and memory weak; urging to stool and urine. E., several watery stools; after sleep, on waking next m., some difficulty of swallowing; palate and pharyngeal m.m. very red and somewhat swollen, uvula swollen. (*Ibid.*)

6. *a.* Krosz, æt. 25. At 8.50 a.m. (temp. being 36·8°, p. 80) took 5 grm. Salty taste, eructation. 8.55 a.m., 5 grm. 9 a.m., feeling of fulness, pressure, and warmth in epigastrium, dulness of head, salivation. 9.15 a.m., p. 72; besides dulness there is heaviness and pressure in head; thinking acuteness diminished. 9.30 a.m., p. 68, slight nausea, liquid stool and much urination. 9.45 a.m., p. 64, palate without reaction. 10 a.m., temp. 36·6°, p. 64, heaviness of eyelids, head hot, general prostration, laziness of movements. 10.30 a.m., p. 58, small, irregular, weariness, can only keep off sleep by walking about. 11 a.m., temp. 36·5°, p. 60, irregular. 11.30 a.m., p. 60, touching palate causes no reaction. Head rather dull. 12.15 p.m., p. 64, retinal vessels rather contracted than enlarged. 1.15 p.m., temp. 36·6°, p. 64, nearly regular. 2.15 p.m., p. 66, palate very slightly sensitive, all symptoms gone except weariness, stupor, and uneasiness in the belly. 2.45 p.m., p. 80. A certain amount of weariness and exhaustion lasts all d. A few d. later an exanthem appeared; on shoulders and lower part of face are many, on the extremities, forehead, and chest several lentil-sized, red extinguishable spots, in the middle of which is a pustule, filled with matter, surrounding a hair glandule. On l. clavicle are two, on shoulders and back several elevated hard red lumps the size of a pea, which are not depressed nor yet do they lose their colour when pressed.

b. On another occasion,—8.25 a.m., temp. 36·8°, p. 80, took 8 grm. 8.30 a.m., 7 grm., salt taste, eructations. 8.45 a.m., p. 76, salivation, pressure and sore feeling in stomach. 9 a.m., p. 72, headache. 9.15 a.m., p. 68, liquid stool, slight nausea, salivation continues, also pressure in epigastric region. 9.30, temp. 36·6°, p. 64, small. No reflex nausea on touching palate, pressive pain and confusion in head. General prostration and weariness, thinking power curtailed and speech slow. 10 a.m., p. 60, irregular and small. 10.30 a.m., temp. 36·4°, p. 57, small and intermitting. 11 a.m., p. 52, small and intermitting, intellectual work difficult. 11.30 a.m., temp. 36·2°, p. 50. 12 noon, p. 52, fauces quite anæsthetic. 12.30 p.m., temp. 36·4°, p. 56, much clear-coloured urine. 2 p.m., temp. 36·6°, p. 66, small and irregular, some headache remains as also slowness of speech. Difficulty of thinking, feeling of exhaustion. Palate reacts a little when touched. 3.45 p.m. temp. 37°, p. 80, regular. At 5 p.m. fell asleep from exhaustion and slept 1 h. Seven d. after this there appeared, besides acne pustules with heads the size of peas on forehead, cheeks, chin and back, a good number of hard, red lumps (as before), some of which suppurated in the middle. (*Ibid.*)

7. A gentleman, anticipating a wakeful n., took 20 gr. before going to bed at 11 p.m. Slept well till 3, when he awoke, and in ½ h., feeling no inclination to sleep further, took 20 gr. more. He slept no

more that n., but at 4.30 a.m. was attacked with flatulent colic in region of duodenum, which passed off in watery diarrhœa during d. Next d. had pain, swelling, and tenderness in l. testicle and cord. Was restless for 4 or 5 n. following, being frequently awakened by voluptuous dreams, with severe erections. (MERRILL, *Trans. of Am. Inst. of Hom.*, 1870, p. 326.)

8. A patient affected with epilepsy, but otherwise well, took 20 gr. daily, which soon caused cessation of the "lapses" (*petit mal*). But in order to make sure, and stop the greater evil also, he went on increasing dose till at length he was taking 70—80 gr. daily. "The first symptom," he writes, "of overdoing the thing that I noticed was the profound and yet disturbed sleep into which it seemed to throw me. I always awoke with mental struggle and effort, not knowing at first where I was, or what had become of me; in fact, as I told Dr. M., I seemed to have gone too far down into the gulf of sleep. Side by side with this, but of course less noticeable to me, was the enfeebling of mental power. A little page in my accounts, which I should usually prepare and balance in ½ h., took me 2 or 3 evenings' weary work. But the worst thing was the tendency to talk 'Mrs. Malaprop' English, substituting one word ending in 'tion' for another in a most provoking and yet ludicrous way,—'contraction' instead of 'subscription,' for instance, when I was asking for the latter, even in writing.* I went from home and for a time dropped the medicine. In a week my host said that I looked ten years younger than when I first came. The stoop in my figure, the slow uncertain speech, and other bad symptoms, especially the heaviness in the eyes, were gone, and I felt quite myself again." (LOCKHART CLARKE, *Brit. and For. Med.-Chir. Rev.*, Oct., 1860.)

II. *Poisonings.*—1. *a.* When given in large doses, such as 30 and 40 gr. 2 or 3 times a d., bromide of potassium produces very striking symptoms in about 10 or 15 d. The patient at first complains of a dull headache, becomes listless and apathetic, with an expressionless gaze and a lustreless eye. His intellect is clouded, his mind confused, and he is unable to concentrate his thoughts. There is slowness of perception, and questions have to be asked several times before their meaning is understood and an answer can be obtained. If, when these symptoms have begun to show themselves, the medicine be continued, hebetude follows, with inability to think, and a kind of stupor resembling that of the first stage of typhoid fever, together with drowsiness, somnolence, and constantly dropping off to sleep. The pupils are dilated, and contract very sluggishly under the influence of a strong light; the sensibility of the conjunctiva is so deadened that a finger may be pressed with impunity on the surface of the eyeball without producing winking. Hearing loses its usual acuteness, and it is only by speaking in a very loud voice that the patient can be aroused from his stupor.

b. The sense of taste is probably impaired like those of hearing and

* "Voisin cites an interesting case of a patient who manifested this disturbance of memory for words also in writing; he wrote some words which were incomprehensible and other words only half finished, in bewildering succession." (BOEHM, Ziemssen's *Cyclopædia*, xvii, 318.)

of sight. The tongue is moist and red at first, but after a few d. it has a tendency to drying and browning. There is anæsthesia of the velum palati, the uvula and upper portion of the pharynx, so that these parts may be tickled without producing nausea or involuntary movements of deglutition. Swallowing itself, however, is unimpaired, and, strangely enough, the appetite remains very good; the patient takes his food well, and dozes off immediately after. Digestion seems to be easy, and the bowels, although sluggish in their action, are not confined. There is intense thirst, and a craving for cold drinks. The anæsthesia is not confined to the mucous membranes only, for the sensibility of the skin is diminished also, so that pinching and pricking are scarcely noticed by the patient. From the beginning the sexual aptitude fails; erections become rare and imperfect, and cease entirely after a few d.

c. Simultaneously with the impairment of sensibility, disorders of motility manifest themselves. Thus the patient is averse to taking exercise, sits and lounges about; by degrees his gait becomes altered, he rolls and staggers like a drunken man, his limbs shake and bend under him. After a time he is obliged to keep to his bed, and when he uses his hands, as in the act of carrying anything to his mouth, they are seen to tremble, as if he were suffering from delirium tremens. The respiration is calm and tranquil, with occasional sighing. The circulation is considerably slackened; the pulse at the wrist is weak and slow; the heart's beat lacking in energy, and its sounds distant and feeble; in fact, in its effect on the heart, bromide of potassium seems to resemble digitalis. If the drug be withheld, these symptoms diminish and pass off of themselves, but they leave behind them for some time afterwards great feebleness, both physical and mental. The anæsthesia of the fauces seems to be the last phenomenon to disappear. (BAZIRE, Trousseau's *Clinical Lectures*, N. Syd. Soc., vol. i.)

2. The following are the symptoms of a toxic dose, which are only an increase or an exaggeration of those of a therapeutic one:—The fœtid breath becomes nauseous; œdema supervenes on congestion of the uvula and fauces; the whispering voice sinks into aphonia; sexual weakness degenerates into impotence; muscular weakness becomes complete paralysis; reflex, general, and special sensibility disappears; the ears do not hear, nor the eyes see, nor the tongue taste; the expression of hebetude becomes first that of imbecility, and then that of idiocy; hallucinations of sight and sound, with or without mania, precede general cerebral indifference, apathy, and paralysis; the respiration, without the stertor of opium or alcohol, is easy but slow; the temperature of the body is lowered. As the bromism becomes more profound, the patient lies quietly on his bed, unable to move, or feel, or swallow, or speak, with dilated and uncontractile pupils, and scarcely any change of the colour of the skin or face; the extremities grow gradually colder and colder; the action of the heart becomes feebler and slower, till it ceases altogether. (CLARKE and AMORY, *op. cit.*)

3. A man affected with ulceration of larynx used K. brom. internally, and by means of a pulveriser. Soon patient's complexion became of a dirty-yellow colour; he had hollow eyes, a strange fixed look, face without expression, considerable emaciation, tottering limbs, trembling

hands, and a generally cachectic state. Gradually appetite was lost; intense pains in hairy scalp supervened, especially at n.; strength was daily diminished, and trembling increased in proportion. As these symptoms of bromism developed themselves, disease in throat was relieved. In two months they declined, and eventually patient recovered. (MARCQ, *L'Union Médicale*, June 16th, 1866.)

4. In a case of epilepsy affecting a woman of 22, increasingly large doses of K. br. were given for the space of a year. Patient became emaciated, skin was yellowish, and face covered with acne; she suffered from gastralgia, and was harassed with dry cough and dryness of throat. Finally she died, delirious, and oppressed in breathing, with small, frequent pulse, and acute abdominal pains. In several cases reported by Vulpian, medicine occasioned a state of prostration with involuntary fæcal discharges, which threatened death. This result was prevented by withdrawal of medicine. (STILLÉ, *op. cit.*)

5. The following were the symptoms of bromism as observed in an epileptic boy, to whom ʒij of K. br. had been administered daily for a month:—extreme pallor and anæmia, dilated pupils, acne on face, forehead, and shoulders; fœtid, bromine breath; slow and feeble action of heart; breathlessness and quickened pulse on slight exertion; cool hands and feet; general subjective sense of coldness; movements in walking tremulous and uncertain; diminution of tactile sensibility of mucous and cutaneous surfaces; fauces dry, and their reflex actions sluggish; swallowing somewhat difficult; anaphrodisia and complete relaxation of genitals; mind weak, manifested in silly conduct and unmeaning laughter. (BARTHOLOW, *op. cit.*)

6. There are five principal forms of eruption. The first of these is acneiform. It commences by pustules; appearing by preference about shoulders, forehead, and nose; first of pin-head size, each surrounded by a red areola, later enlarging and acquiring an indurated base. In this condition it may persist for weeks. Afterwards pus is discharged, but a small reddish nodule remains for some time. The second form appears on the lower extremities, rarely elsewhere. It consists of rounded or elongated elevations, 2 to 5 c.m. in diameter, of rosy colour, sometimes yellowish, as if due to pus beneath the epidermis. The surface is roughened by minute agminated pustules. In the rounded patches the centre is depressed. It is rare for the same patient to have more than two or three of these at a time. The elevations are painful and sensitive to touch, except the depressed centre, which is anæsthetic. Later a creamy fluid is discharged which forms a thick crust. They sometimes ulcerate, and may co-exist with the form first described. The third form resembles erythema nodosum, and affects skin of trunk and extremities, but spares the face. The appearance of the eruption is preceded by pruritus and pain in the affected limbs, which may become œdematous. The fourth form is furuncular, and the fifth eczematous in character. (VOISIN, *Gaz. des Hôpitaux*, 1868, p. 603.)

7. There appear in certain individuals, according to their specific disposition, independently of sex and previous condition of health, at different periods during the administration of this drug, and under the widest variation as regards dose, various affections of the skin, such as:

(1) The erythematous form.—This was observed by Veiel as the sole symptom produced by the drug, attended with fever, and diffusely spread over the lower extremities. The erythema caused the patient great pain. Brown also describes this eruption as an effect of bromide of potassium. In children he witnessed the occurrence of roseola under the same circumstances.

(2) Acne.—This is by far the most frequent form of bromide of potassium eruption. According to Veiel a thickened skin, having a greasy look from the free secretion of sebaceous matter, as well as the presence of comedones or a pre-existing acne, especially predispose to the occurrence of this eruption. It appears under different modifications which, as regards their seat and their external behaviour, present a complete analogy to ordinary acne. The first step in its formation is usually an erythematous condition of the skin of varying extent attended with pricking and burning. In this disease, also, it is advantageous to distinguish two varieties, acne punctata and acne pustulosa.

a. Acne punctata.—This usually precedes the pustular form. There appear red elevations, of barley-corn to pea size, on a more or less indurated base surrounded by an areola, seated by preference on the face, the eyebrows, the hairy scalp, more rarely on the breast and back, and almost never on the lower extremities. Veiel found that the majority of the nodules were perforated by hairs. After a longer or shorter duration this form may disappear with desquamation or develop into:

b. Acne pustulosa.—This may be regarded either as the result of disintegration of the papules or as an independent form of eruption. The pustules are at first of pin-head size, of a yellowish-white colour, and surrounded by an areola. They afterwards increase in size, and in rare cases, according to Voisin, may present the aspect of ecthyma pustules. After a few days or weeks the pustule empties out its contents and a firm nodule or a red spot remains behind. The number of the pustules varies greatly, the whole face being sometimes covered and disfigured by them. They may remain for days or one or more months, and, if the use of the drug be not stopped, even several years; but they usually disappear in from one to three weeks after the discontinuance of the bromide. Voisin also noticed that the number of the pustules increased or diminished with the increase or diminution of the dose. After healing they often leave depressed, irregularly-rounded scars or spots behind. They form on the same locations as the nodules previously described, and become confluent in some cases, being usually covered with scabs on the scalp. Veiel sought in vain for bromine in the contents of the acne pustules, but could find it only in the urine. Guttmann, in the case of a man who, after using for 1 year at first 4 grms. (ʒj) later 12 grms. (ʒiij) of the bromide of potassium daily, developed a pustular acne, succeeded in demonstrating the presence of bromine in the pustules by the usual method, viz. separating the bromine from the potassium by the addition of chlorine water to the diluted and filtered pus and extracting the bromine by chloroform.

(3) The urticaria-like form was observed a few times by Veiel. Wheal-like elevations, varying in size from ¼ to ½ an inch, showed

themselves in erythematous portions of skin. They were exceedingly sensitive to touch and gradually assumed a wart-like appearance and took on suppurative action. The ulcers thus formed became deeper, and had an unhealthy aspect, but disappeared as soon as the bromide was discontinued. This form is without doubt identical with the tumour-like variety described by Voisin, which consists, according to his description, in the appearance of oblong or rounded tumours or elevations of the skin with hard bases, 2 to 5 centimetres ($1\frac{1}{2}$ to 2 inches) in diameter, and of a rosy-red or cherry colour. They show themselves only on the legs or calves and are covered with small yellowish prominences, which, on careful examination, are seen to be agminated acne-like pustules, which empty their contents in the form of a creamy mass, either spontaneously or when punctured. They are very painful when touched, and may be transformed, if the use of the drug is continued, into foul atonic ulcers, which last three or four months ; but if the agent is stopped disappear in a few d. Neumann observed the same affection. He proved that these tumours are produced by an inflammation of the glands of the skin, attended with an increase of their cellular elements and consecutive cell-growth in the cutis, with enlargement of the papillæ. During this process the hair-follicles are dilated, and appear either as long tubes or globular bodies, containing pus, epithelial cells, and masses of smegma.

(4) Erythema nodosum.—In 2 cases out of 96, treated for a long time with bromide of potassium, Voisin witnessed the appearance on the arms and legs, as well as on the body, of patches slightly elevated above the skin, of different forms, sometimes having smooth and sometimes irregular edges. They attained a size of 4 millimetres to 6 centimetres ($\frac{1}{6}$ to $2\frac{1}{2}$ inches), were of a pale red colour in the centre and cherry-red in the periphery. They formed and disappeared very quickly and presented the shape, colour, and hard base of erythema nodosum, but resembled urticaria in reappearing when rubbed. Veiel states that he has seen such an erythema nodosum a few times, but only on the lower extremities. After large doses of bromide of potassium, Smith also saw patches of the size of a half-dollar, somewhat elevated above the surface of the skin, of a bluish-red colour, seated upon both arms. They bled readily, were indolent, and disappeared soon after the drug was discontinued.

(5) The vesicular form.—Voisin saw in a single case, that of a patient who had taken bromide of potassium for more than a year, a moist eczema on the thighs. This observation stands alone in literature.

(6) The furuncular form.—The coincidence of the use of bromide of potassium with the appearance of furuncles has been asserted by so many authors that there can be no doubt that the two things may stand in the relation of cause and effect. Voisin, Smith and Neumann saw furuncles occur in widely varying numbers on many different parts of the body. The latter observed them on the hairy portions of the face, and on the forehead and neck. It should be finally mentioned that Veiel witnessed the appearance of numerous warts on the face and legs of a boy, a short time after beginning the use of bromide of potassium.

Various opinions prevail as to the manner in which the above-

described changes in the skin are produced after the internal administration of the bromine salts. Thus Clarke and Amory regard bromine-acne as a tropho-neurosis, and not as an effect of the eliminated bromide of potassium, and Veiel also does not believe that it is due to an irritation of the sebaceous glands produced by the deposition of bromine in them, having failed to find it there. Martin-Damourette and Pelvet, on the other hand, believe the cause of the affection to be the irritation produced upon the skin in consequence of the elimination of the salt by this channel. The demonstration by Guttmann of bromide of potassium in the contents of the pustules elevates into a certainty the *à priori* already probable hypothesis, that, under certain circumstances, an elimination of the salt by the skin may take place. In this way, on the one hand, an analogy is established with the similar changes in the skin which are excited by the salts of iodine, and, on the other, the view is supported that it is the bromine in the bromide of potassium which causes the affection, and not the potassium, as has been claimed by various authors. This is rendered more probable by the fact that other bromine combinations exert a similar influence. Thus Gowers showed that similar eruptions appear after the use of bromide of ammonium, and Stark saw acne occur in 75 per cent. of all cases of epilepsy treated with bromide of sodium, which lasted longer than that produced by bromide of potassium, and resulted much more frequently in suppuration. He never found affections of the skin after a similar administration of chlorate of potassium. (LEWIN, *op. cit.*)

8. All the above-mentioned changes in brain and spinal cord, circulation, generative organs, and skin, are also seen as the result of chronic poisoning. In the latter case, however, we have also bronchial catarrh, with dyspnœa and attacks of coughing resembling those of whooping-cough,* disturbances of nutrition (want of appetite, great thirst, and diarrhœa), anæmia, and wasting. Death may set in through the development of a pneumonic process in the lungs, or of an intestinal catarrh with typhoid or choleriform symptoms. (NOTHNAGEL and ROSSBACH, *op. cit.*)

9. From the experiments of Bill and Rabuteau it appears that tissue change is retarded under the influence of bromides. The former especially noted that the carbonic acid eliminated was decidedly less than normal, and this independently of diminished nerve-power; and not proportionately to the dose, as it is with morphia and its congeners. For some time after ceasing the medicine the excretion of the gas was increased, implying that, for a time, "the way through the lungs was barred." Rabuteau found that whilst his average daily excretion of urea was 21·25 grms., the mean amount passed whilst he took a daily dose of 15 gr. of K. br. was only 19·52 grms.; for a fortnight after omitting drug it remained at 20 grms.; in third week resumed its normal proportion; and in fourth week exceeded this. (PHILLIPS, *op. cit.*)

10. Dr. HAMMOND relates a series of cases in which the use of K. br. has seemed to bring on mania, or melancholia with delusions. [As all

* "In a few patients Voisin observed dyspnœa and an irritating croupy cough" (BOEHM, *loc. cit.*).

these patients had disease of the nervous centres, their symptoms are insufficiently pure to be reported in detail; but the observation must be noted as suggesting further inquiry.—EDS.] (*Dis. of Nervous System*, 1881, appendix.)

III. *Experiments on animals.*—1. *a.* In 1867 Drs. Eulenberg and Gutmann performed a series of experiments on rabbits and frogs, by injecting a solution under the skin; from which they concluded that K. br. exercises a powerfully sedative action directly upon the heart, and also upon the cerebro-spinal centres which control sensibility and motility.

b. Soon afterwards a still more complete investigation of the subject was made by MM. Martin-Damourette and Pelvet. They made use of rabbits, birds, and frogs in their experiments, and found the effects of the medicine identical in all, so far as their nature was concerned, but most easily studied in cold-blooded animals. When administered hypodermically to frogs, doses of gr. $\frac{1}{12}$ to $\frac{1}{3}$ produce a remarkably placid and slumberous condition, slowing heart's action and contracting capillaries; and doses of gr. $\frac{1}{2}$ to 1 may cause death. In the latter case there is sometimes a transient muscular quivering, soon followed by impaired sensibility and muscular power, which is first manifested near point of introduction. Paralysis of motion precedes that of sensation. The nerve supplying a limb does not lose its excitability until after extinction of that function in the skin, nor does that part of the spinal marrow answering to the nerve lose this function so soon as the nerve itself. Voluntary motion appears to be abolished subsequently, and the respiratory movements at a still later period. One of the first effects is a diminution of the capillary circulation. The rate of movement of the blood through the vessels is first diminished, and then the skin grows pale; the action of the heart becomes more languid, but continues with a steady diminution until death, and indeed may survive the other vital phenomena for several hours. (STILLÉ, *op. cit.*)

2. The evidence is, I think, sufficient to prove that K. br. affects all parts of the nervous system of the lower animals; but that the cerebrum, the motor tract of the cord, and the afferent nerves are the last portions to be affected; that the most sensitive to its action is the receptive portion of the cord,—that which receives and transmits reflex impulses,—and next to this, and perhaps almost equally susceptible with it, are the peripheral ends of the afferent nerves. (H. C. WOOD, *op. cit.*)

3. K. br., when given for several weeks together, according to Albertoni greatly diminishes the excitability of the motor centres, so that when dogs are thoroughly under its influence it is almost impossible to produce epileptic convulsions by irritation of the cortical substance. (BRUNTON, *op. cit.*)

4. Damourette and Saison, as well as Meuriot, Hammond, and Amory, have witnessed narrowing of vessels in the web, the tongue, or the brain of frogs and dogs; but others have failed to see this, and Dr. H. C. Wood considers the evidence insufficient; neither does the observation that divided capillaries of a bromised frog bleed less than normal ones seem free from criticism, for he suggests that lowered

heart's action would account for lessened bleeding. But, these observations apart, I think that the surface pallor that follows the use of bromides, and the lessening of secretion and discharge, points strongly in the same direction (narrowing of vessels). (PHILLIPS, *op. cit.*)

4. Forty gr., in ½ oz. water, injected into jugular of strong greyhound. Had tetanic spasm, with tumultuous and irregular action of heart, and discharge of urine and fæces; 20 m. after appeared well. Eighty gr. were then injected. Sudden cessation of motion of heart and of respiration, along with opisthotonos, lasting 1½ m., with loss of urine. After this, drew two deep inspirations; universal trembling of muscles for 3 m., and then cessation of every sign of life. Chest was immediately opened; voluntary muscles contracted on being cut; lungs collapsed on opening chest; heart was without motion; had lost its irritability in less than 2 m. after death. Heart was gorged with clotted blood, red in l. ventricle, dark coloured in r. Lungs appeared healthy; tips of rugæ of stomach were somewhat redder than natural. (GLOVER, *loc. cit.*)

5. Sixty gr. in ½ oz. water injected into jugular of French poodle. Symptoms were stertorous breathing, escape of urine and fæces, tumultuous and irregular action of heart, which suddenly ceased, frothing at mouth, cries, dilated pupil; death before animal could be untied, in about 2 m. after injection. On being cut, voluntary muscles contracted strongly; 5 m. after death heart had lost irritability, and was gorged with fluid blood, red in l. ventricle. Lungs healthy. (*Ibid.*)

6. Twenty gr. in ʒiss water into jugular of bitch. Death in 40 or 50 seconds. Symptoms: sudden stoppage of heart, preceded by stertorous respirations, escape of urine and fæces, and dilated pupil. Heart had lost irritability, and was gorged with blood, fluid in r. ventricle, red and coagulated in l. (*Ibid.*)

7. Hæmadynamometer was connected with femoral artery of terrier; 60 gr. in ½ oz. water injected into carotid in direction of heart. Previously to this, mercury was raised 2 inches and 8 lines. As solution was introduced, pressure in instrument was augmented till mercury had risen 5 inches. This elevation was only for 1 m., during which oscillations were also greater, owing perhaps to struggles and hard breathing. After 1 m. mercury suddenly fell below former level, and continued to fall, until in about 2 m. and 20 seconds all pressure in arterial system seemed removed; death in 2½ m. after injection. Animal voided urine and fæces during experiment, and seemed spasmodically agitated. Appearances much the same, on inspecting chest, as in experiments where injection was made in jugular. Brain healthy. (*Ibid.*)

8. Forty gr. in ʒiij of water injected into femoral artery of terrier-bitch in direction of circulation. Spasmodic extension of limb was followed by spasmodic action of muscles of chest, and by extension of other limbs, with excited heart and dilated pupil. This lasted 5 m. and then subsided. (*Ibid.*)

9. A hundred gr. in ʒiij water into stomach of rabbit. 5 m. after fell flat on belly. Loss of power over hind legs; made ineffectual efforts to crawl. Breathing became quicker, embarrassed, and abdominal. Heart irregular and feeble. This lasted ½ h., during which fæces twice

escaped, and iris seemed paralysed. Eyelids winked; a stroke appeared to excite convulsive strikings-out of the limbs. Towards close of ½ h. seemed greatly agitated, recovered for short time use of limbs. Head was moved forwards and backwards with great velocity, body bent in crouching form while on his legs. Had then emprosthotonos and opisthotonos. At length fell on his side, and had rapid movements of forelegs for 1 m. and died after few deep inspirations. Muscles contracted feebly on being cut. Auricles contracted feebly; ventricles did not respond to stimulus of knife 2 m. after death. Peristaltic action continued. Lungs greatly congested toward dependent part, and contained much frothy serum. Pericardium contained serum; blood dark coloured and fluid in both heart-cavities. Stomach contracted towards pylorus, loose at cardiac extremity. On washing stomach, epithelium came off. Mucous membrane over cardiac portion was softened, grey, but dotted with numerous purple ecchymoses. Beneath, muscular tunic greatly congested. Large bloody patch where œsophagus enters stomach, another at lower portion of cardiac sac. Upper part of small intestines exhibited appearances approaching those of stomach. Lower part of liver darker coloured than natural. Membranes of spinal cord showed marks of congestion, and there was some effusion of serum into ventricles of brain. Bladder full. Brom. in blood, liver, and urine. (*Ibid.*)

Natrum bromatum, bromide of sodium, Na Br.

I. *Provings.* 1. During course of an e. I took 25 gr. on an empty stomach, in two doses of 10 and one of 5 gr., at ½ h. intervals. The effect on pulse and temperature was negative; upon retiring to rest as usual, I experienced a somewhat pleasant drowsy sensation and slept remarkably well, though I awoke several times during the n., as is customary with me. Towards m., however, I felt a numbness and tingling in both forearms and in my l. leg, which did not entirely disappear for some h. subsequently. I ought to state that shortly after each dose I experienced a burning sensation at the epigastrium, which quickly passed off. (HOLLIS, *Pract.* xi, 81.)

2. LABORDE took 16 grms., and experienced thirst, salivation, great wish to sleep, stupor on waking, melancholy, vertigo—ground under his feet seemed to move, ataxia, slow pulse, loss of power of will, and insensibility of throat. (*A. h. Z.*, lxxxvii, 46.—Referred to *Arch. de Physiol.* for 1869, but not to be found there.)

II. *Experiments on animals.*—1. Hæmadynamometer was connected with femoral artery of cocker-dog; 50 gr. bromide of sodium, in ʒij water, into jugular. Mercury, whose highest mark was 2¾ in., fell directly to level, and remained there 60 seconds, no oscillations distinguishable. In 1 min. after injection, column began to rise, and soon regained former level, oscillations less frequent, but stronger than before operation. 4 min. after operation, heart seemed restored; he was set loose. Had lost power of moving limbs, but retained consciousness. Pupil dilated. Heart's action became synchronous with respiration, being 54 in minute. One h. after operation was in same state, but gradually recovered. (GLOVER, *loc. cit.*)

2. A hundred gr., in ʒiij water, were thrown into jugular of terrier bitch (large and strong). Only symptom was much quickened and excited heart. Animal on being set loose seemed lively and excited. (*Ibid.*)*

* For other bromides, see the substances with which the B. is compounded.—EDS.

BRYONIA.

Including *B. alba*, L., white bryony; and *B. dioica*. Nat. Ord., *Cucurbitaceæ*.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. ii of original, vol. i of translation. Contains 781 symptoms from self and six fellow-provers.

2. *a.* Dr. ARNETH, Sept. 18th, 1844, took fasting in m. 20 dr. tinct. of B. alba. Soon after, bitter taste and eructation, dull headache in frontal and temporal regions, and after about 10 m. peculiar shivery feeling. On 20th, 30 dr. Bitter eructations lasting about 10 m. During last 3 d. stools appeared to be softer than usual. At intervals during 30 h. somewhat severe bruised feeling extending from false ribs on l. side to umbilicus. On 23rd 40 dr.; no symptoms. On 27th, fasting, 50 dr. Eructations tasting of B. lasting about ¼ h. Immediately afterwards headache on well-defined spot of supra-orbital region lasting 10 m. On 29th 50 dr.; no symptoms. On Oct. 1st, fasting, 70 dr.; notwithstanding careful observation, did not notice any morbid symptoms till 3 or 4 p.m. Towards this time, after moving about not more than usual, severe pressive pain in forehead, especially in supra-orbital regions, pain being more severe than he had ever felt. During n. (from Oct. 5th to 6th) was very restless, sleeping barely ½ h. at a time, and during disturbed sleep was busy with what he had been reading the previous e. Each time he awoke felt dull pressure in umbilical region, but soon relapsed into a doze, during which his previous dreams recurred; and this experience was constantly repeated until he awoke on m. of 6th, with violent urging to stool. Motion was sudden, partly fluid and partly solid. In course of d. had 3 or 4 similar motions; but tongue was clean, taste natural, and appetite good. Throughout, however, felt somewhat prostrated. On 7th was well, except for tendency to diarrhœa, especially induced by exposure to a draught; also pressive pain in forehead brought on each time after prolonged reading. On 8th occasionally itching (lasting several seconds) of joint of 1st and 2nd phalanges of fingers of l. hand; this without any discoverable cause. The great tendency to frontal headache continued. On 9th, 57 dr., no symptoms.

b. On Oct. 20th, in m., 100 dr. of tinct. The same d., but especially on 21st, had feeling as if bladder was not quite emptied, and after urinating there remained a feeling of heaviness in region of bladder and also cramp-like movements of that viscus. On 22nd, after writing for some time, noticed that 3rd finger of r. hand almost lost power; he therefore rested for a while. On returning to his writing-table, however, after a certain time the powerless feeling was even more marked. On 23rd, this finger was considerably swollen and painful on pressure and still more on movement; joints of 1st and 2nd phalanx were most affected. On 24th, 5th finger of same hand was similarly attacked, though not so severely. At 2 p.m. A. took 210 dr. of tinct. The feeling of nausea lasted only a short time. Much less oppression of head than after earlier doses. On 25th, 220 dr. in m. No sym-

ptoms except slight heaviness of head. [Dr. Arneth subseque proved the 203rd dilution, and had an inflammation of the external which, being a unique occurrence, we are unable to ascribe to drug.—Eds.]

3. Dr. Gubatta began his proving of B. alba May 18th, 1844, w 10 dr. of tinct. On 19th took 15 dr. On 20th, 20 dr. Troublesc constipation and slight headache. On 21st, 25 dr. Constipation c tinues. On 22nd, 30 dr. Violent urging to stool, followed by sm hard motion. On 23rd, at 6.30 a.m., anguish in region of heart, without affecting its action; uneasy feeling and constriction of che short oppressed breathing,—these symptoms lasting till midday. 24 —Without medicine; no symptoms. 25th.—Constipation, great opp sion of heart. On 27th took 50 dr., and repeated this dose May 28 30th, and 31st, and June 2nd, 3rd, 4th, 5th, and 6th. May 27th The bowels have not acted for 5 d. 28th.—Soon after taking medic gurgling and rumbling in bowels, severe griping, followed by t watery evacuations at short intervals. 30th.—Abdomen feels m drawn in. At intervals gurgling and griping, with fruitless urging stool. 31st.—Frequent urging to stool, without result; great prost tion, morose humour (contrary to his usual disposition and without a cause). June 1st.—Constipation; mental state the same. 2nd Rumbling and griping in bowels, followed quickly by 10 to 12 wat evacuations within 1 h. 3rd.—Griping with pressure, no stool. 4th Griping, great prostration and feeling of fatigue. 5th.—Soon af taking medicine sudden rigor, followed in ½ h. by heat; therewith ti feeling in all limbs; distressing headache; weight in head and gid ness, continual nausea, so breathless that he could scarcely utter a wo excited and rapid action of heart. He was obliged to go to bed at a.m., and free perspiration ensued after a little while, during wh above-mentioned symptoms gradually passed off in the same order which they had occurred; only giddiness persisted for a short tin At 9.30 G. was quite well again and able to leave his bed. In aft noon a feeling of prostration, followed by two watery evacuations wi out urging. On 6th recurrence of all symptoms, in the same order a lasting same time; only the prostration and nausea more mark After a short rest on a couch these symptoms again subsided, leavi only exhaustion and mental depression, which lasted the whole da 7th.—Without medicine; no action of bowels, otherwise well duri d. 8th.—Without medicine; two watery evacuations in e. On 9 and 10th loud rumbling in bowels and constant urging to stool. 11t —Two scanty hard motions, preceded by colicky pain in the bowe From 12th to 18th frequent rumbling in bowels, colicky pains, const pation and diarrhœa alternately. This irregularity in action of bowe continued some time (his ordinary habit being a daily normal evacu tion).

4. *a.* Dr. William Huber, æt. 38, of strong constitution, sa guine temperament; had abdominal typhus when a youth, and sin then has been healthy except for occasional sorethroat and diarrhœ He prepared from the tinct. of B. dioica ten decimal dilutions, an began his experiments with these on March 18th, 1844. He took fir

the 10th dil., and rose gradually, using each attenuation for 3 d., dose being ʒj at 7 a.m. During proving he gave up coffee, but in other respects adhered to his ordinary simple and regular diet.

He observes: "In n., March 18th to 19th, I awoke at 1 with pain in thighs, dull pressive pain in occipital region and goose-skin; fell asleep again in ½ h., but was half-conscious of doing so, and struggled against it as if it were a faint. From 19th to 26th, no symptoms. In n. 26th to 27th, waking occasionally, with pressive drawing pains in back and thighs, so that turning round was difficult. 27th, in m., slight action of bowels. 28th.—No symptoms. 29th, m., ½ h. after taking dose (7th attenuation), great dryness of lips, back of tongue, and palate. At 11 a.m. shooting, tensive pain in ligaments of l. shoulder-joint, less felt when at rest, but on active movement hurt as if dislocated. 30th, m. in bed (½ h. after taking ʒj of 5th dil.), beneath wall of r. hypochondrium sharp stitch passing towards epigastrium. About 12 severe twinge of pain in r. lumbar region. 31st.—Soon after taking medicine, qualmishness, felt especially on r. side, followed by slight eructation, alternating with collection of saliva in mouth. Painful stiffness of finger-joints of r. hand, worse on bending. April 1st and 2nd.—No symptoms except this stiffness. April 3rd, m., while in bed, tearing pain in r. hypochondrium for 10 m. passing off with rumbling in upper part of abdomen, at same time scraping sensation (as of deranged stomach). In n., April 3rd to 4th, frequent confused dreams of fighting. 4th, m., tardy stool (rather unusual for him); throughout d. painful stiffness of r. hand, especially on movement; painful pressure over a space (of the breadth of a hand) on r. mammary region, most felt on expiration; at same time dull, pressive pain in r. femoral region. From April 5th to 13th, no symptoms. 14th, m., ½ h. after taking medicine, scraping sensation in stomach, tasteless eructation and rumbling in upper part of abdomen. April 15th, m., ½ h. after taking medicine painful tension under false ribs in r. hypochondrium, lasting about 10 m., and felt especially when taking deep breath. About noon, tasteless eructations. April 15th to 16th, awoke at 4 a.m. feeling as if he had had the full amount of sleep. When lying on abdomen feeling as of an inflated bladder (of size of a man's fist) under and pressing out abdominal wall in umbilical region, without pain or hardness. This feeling was less marked in back. It recurred frequently during and after proving. On e. of 16th and m. of 17th, slight diarrhœa.

b. On April 17th, Dr. H. began experiments with tinct., and from this date to May 16th took 901 dr. On 17th, at 7 a.m., took 6 dr. in a spoonful of water, and increased dose gradually up to 18 dr. on the 20th, but without any apparent effects. On 21st, 20 dr.; towards e. frequent tasteless eructations, rumbling in bowels, and discharge of offensive flatus. 22nd, in m., 20 dr.; after 1 h. painful twitching in temple over the eye, recurring at frequent intervals; sharp stitch deep in r. hypochondrium; painful pressure and feeling of fulness in the loins. About 2 p.m., a somewhat hard stool. 24th, at 7 a.m., 25 dr.; after 4 h. severe cutting or shooting pains in cardiac region, not lasting long at a time, but recurring at frequent intervals; ½ h. afterwards, painless throbbing (like a tendon or muscle twitching) somewhat

to l. of epigastrium in or immediately beneath abdominal wall (occasionally). About 3 p.m., a hardish stool with tendency to eructation. At 8 p.m., several eructations without taste or odour. At 9.30 p.m., while in bed, sudden sickness, recurring frequently; increased flow of saliva, and, without any apparent cause, rancid taste and scraping sensation in stomach. Soon afterwards inward, dry, burning heat without preceding chill, dryness of tongue, lips, and palate, thirst, and feeling of general prostration, especially in limbs, pulse feverishly quick and full, skin harsh and dry, loud ringing in ears. He fell asleep in this state and had many troubled and confused dreams in which he developed great activity; awoke at 5.30 a.m., feeling quite well except for aching pain in loins. 25th, in m., took 25 dr. After 1 h. painful stiffness in l. hand and forearm involving ligaments and aponeuroses. During n., again many active dreams. In m., while in bed, pain in region of r. kidney, lasting only a short time. 26th, in m., took 25 dr. After 3 h. drawing, bursting headache in l. frontal and occipital regions, which came on whilst walking, of short duration. 27th, in m., took 30 dr. After 1 h., beating, stretching pain deep in r. lumbar region just over haunch-bone, lasting only 2 or 3 m., but recurring twice at short intervals. Soon afterwards pricking itching under r. upper eyelid (as from a hair), disappearing on rubbing. About 9 a.m., stretching and drawing pain on anterior surface of r. thigh just below Poupart's ligament, subsiding for a few m. during rest and then recurring. At 7.30 p.m., painful stiffness of middle joint of r. middle finger, aggravated by bending and diminished by rubbing. On 28th, about 6.30 a.m., sharp, momentary stitch in r. hypochondrium, immediately thereafter similar sensation in epigastrium. After 15 m. painful drawing and stretching in l. frontal region over eyebrows as of band tied round forehead. Took 35 dr. After 3 h. eructations, gurgling in l. side near stomach; momentary stitch in r. hypochondrium with painful tenderness, especially on firm pressure or deep inspiration. 29th, 40 dr. After ½ h. scraping sensation in stomach with tendency to eructation, nausea, vertigo, frequent yawning during 2 h. 30th, 40 dr. Same symptoms. May 1st, 40 dr. In afternoon severe pricking (as if with needles) on under surface of third and fourth toes of r. foot; on waking during n., when he was feverish, pulse much quickened, hearing very sensitive; could not sleep well again. 2nd, 45 dr. Nausea, inclination to vomiting, constant eructation, confusion of head the whole forenoon, aggravated at times, and accompanied with chilly feeling in back; at same time throat felt as if compressed by broad band round it; frequent yawning. After dinner tasteless eructations, vertigo, and confusion of head, slight drawing pain in l. frontal region. About 3 p.m. gurgling in abdomen, followed by moderate pappy stool and considerable discharge of odourless flatus. Face pale. 3rd, 50 dr. (in m.). After 1 h. same symptoms as yesterday m., only chills more frequent and severe. At 2.30 p.m., diarrhœic greenish stool. 7th, 55 dr. Same symptoms as on m. of 2nd and 3rd; attacks of chills and nausea every 5 to 10 m. At 3 p.m., stitch-like prick of needle r. side of neck just over sternal end of clavicle. 8th, 60 dr. Immediately on taking dose, nausea and shud-

dering. After 2 h. drawing pain over l. eyebrow, slight at first but gradually increasing in severity, and lasting from 10 to 15 seconds, recurring every 5 or 10 m., scraping sensation in stomach and rancid taste like commencing heartburn, with tensive pain in r. hypochondrium. About ½ h. afterwards rumbling in bowels, rather severe cutting colicky pains in l. side of abdomen, followed by discharge of flatus, cramp-like pain in l. calf. About noon tensive pressive pain in r. lumbar region and in both gluteal regions. After dinner slight colic, followed by great discharge of flatus, and later by pappy evacuation. At 3 p.m., drawing pain over r. eyebrow, and 1 h. later somewhat severe stitch in l. chest under mamma, and needle-like stitches in scrobiculus cordis, only on deep inspiration or bending body to r. Slept quietly during n. In m., on waking, slight pain in l. tonsil and feeling of fulness in loins; urine of a dark or brownish colour. 9th, 70 dr. After ½ h. dryness of cavity of mouth except point of tongue, scraping sensation in stomach, disgust, nausea and vomiting frequently recurring, somewhat severe tensive pain on lower third of r. forearm, alternating with tensive pain in l. knee. Between 7 and 8 a.m., ½ h. after getting up, dulness of head; nausea; fine stitches in scrobiculus cordis, worse when moving about, and on deep inspiration; stitches in cardiac region lasting only a few seconds. At 8, tension and aching in r. shoulder-joint while at rest; painful drawing in whole forehead with dulness and confusion of head; scraping irritation in bronchial tubes inducing dry cough, afterwards brownish pappy evacuation. At 9, rumbling in epigastrium (l.), slight eructation and nausea, tensive pain in l. hip. 1 h. after dinner painless slimy diarrhœa. The angina tonsillaris with which he awoke in m. continued in less degree all d., and there was also a small aphthous erosion on mucous membrane of upper lip. At 6 p.m., painful drawing and tension in r. forehead and posterior portion of r. parietal bone, lasting 10 to 15 seconds, and alternating with similar pain on l. side of head. 8 p.m., sensibility disturbed, dulness, general prostration, burning heat of both feet as if immersed in hot water up to ankles, painful stitches in heels and corns, stiffness of lower extremities and nape of neck; pains (felt only when moving) in different parts, as in l. knee, l. hip, and in loins; at same time fluent coryza, shivering stretching of limbs, and frequent yawning; deafness of l. ear as if stopped up; pulse full, strong, and quickened; urine somewhat burning; in this state H. went to bed, drank two glasses of raspberry vinegar, and lay till 9, when he was suddenly seized with shivering induced merely by raising the bedclothes when he turned in bed; convulsive twitching of muscles of back, chest, and abdomen, and shaking of limbs. The rigor seemed to concentrate in chest, lasted about 10 m., and recurred whenever body was moved. After ¼ h. this was succeeded by dry heat extending over whole body; hands, feet, and face especially burning, vascular system much excited, pulse over 100; confusion of head, pressive pain in occiput and nape; roaring in l. ear; severe coryza, l. nostril stopped up, flow of watery fluid from the r.; slight angina tonsillaris; thirst; loss of appetite; transient stitches (as if in pleura) under l. mamma; aching in loins; persistent erection of penis, but without sexual desire; fine stitch in l. testicle; drawing

pain in lower third of r. forearm. During this hot stage
asleep, awoke at midnight in profuse perspiration, and feelin
cheerful as if all his troubles had been charmed away. The
discharge from nose (cold in the head) looser, and of a whitish
colour, smelling of newly-baked bread; pulse quieter. After
h. perspiration was less, he fell asleep again, had confused drea
awoke at 6 a.m. feeling prostrate; pulse somewhat quick; co
of head; slight drawing pain in forehead, and pressive ach
occipital region; skin sensitive; urine brownish without sed
aphthæ on inner surface of lip bleeding; shooting pains in u
tensive pain extending from r. testicle along spermatic cord
groin. 10th.—Confusion of head whole forenoon; very bitte
as of tinct., but only at point of tongue (circumscribed); in aft
frequent shooting pains in l. dorsal region, but especially seve
side of chest, and l. nipple, aggravated by moving body or b
back l. arm. 11th.—On awaking general perspiration. Urine
a deep-brown cloud. During day slight pressive aching i
gluteal regions. 12th, m., scraping sensation at lower end of w
causing dry cough. 13th.—H. took 80 dr. of tinct. in m. Aft
scraping sensation in stomach, eructation, grumbling in
feeling of nausea from stomach with shuddering, and convulsive
ing of abdominal muscles, especially at epigastrium. Naus
vomiting the whole forenoon at intervals of 10 or 15 m.;
confused; gloomy; tensive pain on anterior surface of r. thig
under Poupart's ligament, slight pain in l. hip, pressive aching i
(l.). All pains are increased by movement. About 11 a.m.
colicky pain in r. side of abdomen somewhat under umbilicus, sh
pinching pains lasting some m., followed by discharge of flatus.
intervals of 15 m. these attacks recurred twice. After dinner
painless diarrhœa (greenish-brown fluid); afterwards pinching
from r. hypochondrium towards stomach lasting some seconds; pr
or itching in outer canthus of l. eye. About 4 p.m. slight aching in
head and occiput, with slight tension in r. side of neck just under l
and shooting or itching on general integument. 14th, 60 dr. at
After 1 h. scraping sensation in throat and stomach with shudd
pains in l. knee-joint only felt when moving. At 9, transitory b
pain over spot size of crown on r. side of chest (ribs); stiffness
hand and fingers. At 11.30, pressive pain in l. occiput, and tra
shooting pain in l. heel. Colicky pain during and after midday
After dinner painless diarrhœa. At 2 p.m., itching of edges of r.
relieved by rubbing. At 3, tensive pain in first phalangeal joint
index finger lasting some seconds (at rest), painless (muscular) twi
of l. abdominal wall between navel and false ribs; afterwards sh
pains deep in l. side of back lasting 5 or 6 m., followed by severe st
on inner side of r. heel. 15th, 100 dr. After ¼ h. sharp, rancid f
in stomach; shooting, scraping sensation as of a thorn in the par
7th cervical vertebra, only felt when moving. After 1 h. great
ness, shivering feeling in back and all over body; yawning; gre
clination to vomiting. All symptoms aggravated by moving; o
to go to bed. At this time increased flow of tasteless saliva in m

great giddiness and confusion of head, numb feeling in occiput with sensation as if head were enlarged; determination of blood to head, flushing of face, continued nausea, frequent twitching and convulsive movements of abdominal muscles on r. side, stuffy cold (suddenly) and roaring in l. ear with feeling as if it were stopped up and hearing impaired; obliged to keep very quiet, as nausea and vomiting occurred on least attempt to move. At same time scraping sensation at bifurcation of windpipe, causing dry cough. At 10 a.m., severe tensive and stretching pain on l. side of forehead over eyebrow, lasting some m. Before dinner colicky pinching pain at umbilicus, followed by discharge of flatus. After ½ h. diarrhœa (green, slimy) followed by noisy discharge of flatus. At 3 p.m., itching smarting in l. inner canthus and feeling as of sand in l. eye. At 4, pain over spot (size of crown) on r. side of chest under axilla, increased by movement; frequent tearing pain at inner side of left heel, lasting 5 or 6 m.; tensive shooting pain deep in r. lumbar region. At 6, diarrhœa. 16th.—Several empty eructations and two soft motions during d. 17th.—Tensive pain in l. forehead; slight feeling of oppression of breathing at upper sternal region, with shooting pains in anterior wall of chest induced by every movement and lasting some m.; intense bitter taste (as of B.) on tongue, although no medicine had been taken for 2 d. During whole proving, which lasted two months, his disposition was more irritable than usual, any contradiction easily exciting anger. The sexual instinct was rather increased than diminished. (*Ibid.*)

5. *a.* Wenzel Huber, surgeon at Kleinzell, in Austria, æt. 43, of strong constitution, phlegmatic temperament, never had any special illness. As district surgeon in a very hilly part of the country is obliged to walk great distances, exposed to all kinds of weather. His diet is simple, and usual drink is beer. He began proving with attenuations, which he prepared in proportion of 10 to 90 dr., and took as a single dose the entire quantity of each strength (100 dr.). Commencing with the 30th attenuation, he gradually passed to the lower potencies. The first days he experienced no morbid symptoms. After taking the 25th attenuation he shivered while going over a steep hill; afterwards unusual perspiration and fatigue.

b. On 25th June, H— began experiments with tinct. by taking 15 dr. early in the m. (fasting). On 26th, 30 dr. No symptoms. On 27th, 60 dr. Soon after taking dose sickness, excessive flow of saliva (while smoking). After 1 h. confusion of head lasting 2 h. July 2nd, 90 dr. Soon after taking dose slight sickness; heaviness and confusion of head. After 1 h. shuddering from neck along spine, lasting only a short time. In afternoon, while driving in a very shaky carriage, pinching around umbilicus and towards spleen; stomach full and tender on pressure; frequent yawning. These symptoms continued all d. In e. repugnance to beer. N. quiet. 3rd.—Without medicine. Early soft stool. Pain in muscles of chest while writing; at same time feeling of constriction of chest. During whole d. raw feeling on inner surface of sternum. Fulness of stomach; slight tendency to pinching around umbilicus; finger-joints somewhat tender on active movement, feeling as if articular surfaces were swollen, preventing movement; pain from

holding a pen long or from grasping strongly; distaste for tobacco whole d., and when trying to smoke excessive flow of saliva. Heartburn after drinking glass of wine in e. N. quiet. 4th, 90 dr. at 8 a.m. Soon after nausea and shuddering; two copious motions; distaste for tobacco and much saliva when smoking. At 10 a.m., slight pinching around umbilicus and from liver to region of spleen, nausea and inclination to vomit; raw feeling of upper portion of inner surface of sternum, felt most when breathing deeply; frequent shivering when walking (though a hot day); nausea, excessive saliva, frequent expectoration; feeling as if something were sticking in throat (like a crumb or a worm); pressure and fulness of stomach; gastric region somewhat tender on pressure; at intervals severe pinching around umbilicus; out of humour; head muddled; on stepping firmly stitches through head, chiefly from front to back; pressive pains in finger- and wrist-joints, with transient stitches extending to axilla, also occasionally in knee and other parts more or less severely, movement being painful; muscles of chest tender on pressure and from moving hands; raw painful sensation over entire sternal region. The prover noted especially stiffness of facial muscles, which lasted more or less for 2 h. At 11 a.m., nauseous bitter taste after drink of beer, nausea and shuddering, repugnance to tobacco (smoking), ill-humour, headache in frontal and temporal regions, alternating with pressive pains in hand and finger-joints, and with gripings in abdomen. At midday little appetite, taste bitter, tongue white, great flow of saliva, necessitating expectoration. Soon after food, soft stool. At 1 p.m., while walking, breathing quicker than usual and feeling of constriction in upper part of chest. During a drive of 2 h. over rather rough road head confused, but without distinct pain. The constriction of chest and raw feeling on inner surface of sternum became worse, and finally so severe that he was obliged to get out of the carriage and rest. At same time muscles of chest felt bruised, every movement of arm being painful. In throat, feeling as if foreign body were stickingthere, and although there was plentiful secretion of saliva, entire throat seemed dry, also burning pain which arose from inner surface of sternum. Frequent yawning and sneezing. Urine scanty and hot. At 4 p.m., nauseous bitter taste after drink of beer, nausea and inclination to vomiting, accompanied by shuddering. N. was quiet; he was, however, obliged to urinate frequently, passing only a little at a time, and urine felt hot. Amount during n. was about half the quantity passed in a d. during health. 5th.—Without medicine. In m. head somewhat confused, taste insipid, tongue white, appetite good, distaste for smoking; pressure, distension of stomach. Afternoon, while heated from walking, shivering; hepatic region tender; stomach distended and sensitive, with feeling as if heartburn would come on; frequent empty eructation. At 2 p.m., copious soft stool. At 3, heat in head, pressive aching in forehead lasting 1 h. Taste natural in e.; distaste for smoking.

c. July 30th.—Took 60 dr. at 9 a.m. Soon after taking it shuddering all over, especially back. After 1 h. pain around umbilicus for a short time; pressive aching in forehead; face hot and perspiration of face on slightest exertion; feeling of heat over whole body; boring pain

around umbilicus, urging to stool, soft evacuation. At 11.30 a.m., shivering, nausea, great flow of saliva. 31st, 100 dr. at 9 a.m. Immediately afterwards shuddering disgust, flow of saliva, necessitating expectoration. After 15 m. slight cutting pain around umbilicus. At 10 a.m., shuddering without apparent cause, pressive frontal headache, so severe that he was unable to read for ½ h. At 11 a.m., shivering with transient tearing pain in finger-joints of l. hand, and boring pain under umbilicus. At noon, after usual beef soup, slight vertigo, pressive headache, pressure in stomach, eructations, great weakness, and perspiration over whole body after slightest movement. At 2 p.m., natural stool; stiffness and swelling of finger-joints, which are also painful on being extended or touched; raw feeling in l. chest, tension both sides of chest, worse on deep inspiration. At 3, feeling as of a stone lying in gastric region, which is painful on pressure, distaste for smoking, pectoral muscles tender to touch, feeling as if beaten, mind very irritable, disinclined for work. After three watery evacuations (within an h.) all the symptoms declined. Aug. 1st (early).—Pressive headache, stitches in r. knee impeding movement, feels stronger, no action of bowels during d. (very unusual). 2nd.—No special symptoms, appetite good, strength normal. At 3 p.m., stool (constipated). (*Ibid.*)

6. *a.* LANDESMANN, strong constitution, sanguine temperament, began provings June 13th, 1844, by taking at 6 p.m. 8 drops tinct.; on 14th, at 4.30 a.m., 15 dr.; on same day, at 9 a.m., 25 dr.; and on 15th, at 5 a.m., 40 dr. From all these doses there were only slight though (to patient) unusual symptoms, *e. g.* itching in neck, transient stitches both sides of chest and in eyebrows, several attacks of dry cough, slight tensive pain (lasting 2 d.) in r. upper arm near insertion of deltoid muscle. On June 18th, at 9.30 a.m., 60 dr. tinct.; after ½ h. slight drawing pain in l. cheek lasting only a few seconds; no other symptoms during d. At 7.30 p.m., took 100 dr.; during n. awakened 3 times by rather severe pinching pain in umbilical region lasting only few m., recurring several times, and passing off with discharges of flatus, and leaving only an uneasy feeling in abdomen; once felt throbbing in rectum. In m. on getting up was unusually dull and languid. At 9 a.m., sneezed 6 times as if getting a cold. On 20th, at 7 a.m., some drops of blood escaped from l. nostril; having no discomfort except slight tenderness of abdomen he took 180 dr. tinct. at 9.30 a.m. At 11, nausea; at noon, no appetite; ½ h. after meal sudden vomiting without straining, slight bleeding from l. nostril; 15 m. later, hawking, and after second interval of 15 m., slight vomiting. In afternoon very excited; frequent pinching pain in different parts of abdomen, stitches here and there, especially in r. eye and l. arm. 21st.—Constipation. 22nd.—Took 25 dr. tinct.; nausea and inclination to vomiting. From June 23rd to July 1st, no symptoms except indefinite transient stitches in different parts of body; but on July 2nd awoke after restless n. with severe dry cough and raw feeling in chest; cough recurred several times during d. accompanied with expectoration of thin greenish mucus, cough less severe at n., continued slightly till 22nd. On 7th, at 1 p.m., transient stitch in r. side of chest, so severe that he had to hold his breath. 8th.—Frequent sneezing and running cold lasting till 22nd.

11th.—Chest very tender, stitches both sides on deep inspiration. 7 p.m., burning pain in middle of tongue; an h. later hard pimple of size of millet seed on same spot. 12th.—During whole forenoon stitches both sides of chest on inspiration. 15th.—Painful vesicle on l. edge of tongue, disappearing after some h., but the part sensitive for several d. 16th, forenoon, weak and powerless feeling in r. knee-joint, so that he had almost to drag foot; somewhat severe stitches in stomach. 23rd, forenoon, fit of sneezing, and after dinner severe pinching pain in umbilical region, which brought drops of perspiration on forehead; pain ceased after ¾ h. with discharge of very offensive flatus. 24th and 25th.—Quite well.

b. On Aug. 2nd, L— began a second series of provings with dilutions (centesimal). He first took, each morning, 100 dr. of the 1st dil. Aug. 1st, e., abdomen very tender. 3rd.—Painful stitches in r. chest, scrobiculus cordis, and umbilical region, occurring here and there as if parts were touched with a sharp-pointed instrument. At same time, slight drawing pain on inner side of r. upper arm. At 4 p.m., pain in l. occiput, worse from touch. Slight drawing pain in r. heel. At 10 p.m., sneezing. 6th, ½ h. after dinner, colicky pain around umbilicus, relieved by discharge of flatus. At 2.30 p.m., burning pain in skin outer side of l. knee, lasting several seconds and often recurring. 9.30, severe stitch in anterior portion of urethra. 7th, afternoon, pressive headache, frequent eructations tasting of food, pressure in gullet as if stomach were loaded, discharges of offensive flatus. Other dilutions produced no noteworthy effects. The action of B. tinct. (453 dr. in all having been taken) extended over 4 weeks. (*Ibid.*)

7. *a*. Dr. C. W. MAYRHOFER, æt. 27, sanguine temperament, strong constitution, healthy for many years past, only liable to occasional hæmorrhoids, also to colic with diarrhœa as result of getting cold. On May 8th, took, fasting, at 6 a.m., 20 dr. of tincture. Sharp, nauseous taste, and bitter eructations, lasting till noon. After 5 h., transient stitches in r. knee-joint on movement. Appetite good, but usual evacuation absent. 9th, at 6 a.m., 30 dr.; bitter taste and nauseous eructation. 10, unusually weak and dejected, slight drawing pains in upper arms and thighs. At noon, momentary vertigo as though he would fall. Afternoon, while going about, several transient stitches in l. knee and in first joint of r. thumb; but felt better after passing flatus. 10th. —Without medicine, quite well, only that usual evacuation was absent. 11th.—After constipated stool, m., took, at 9 a.m., 40 dr. tinct. Nausea and eructation. After 4 h. transient, drawing pains in nearly all limbs and joints, most severe in l. wrist. Pains only momentary in knees, ankles, and nape, more fixed in l. shoulder-joint, felt both at rest and when moving, paralysed feeling during movement. At 3 p.m., last traces of pain had gone, and following n. was undisturbed. 12th, m., 50 dr.; nausea and bitter taste till noon. After 4 h., pains (above described) began not only in joints but also in fore and upper arm, thighs, legs, phalanges of fingers and toes, and in nape; drawing and scraping pains in long bones, accompanied with fine stitches. At noon, confused and dull headache. During dinner (12, noon) felt suddenly severe stitch in hypogastrium from l. to r., soon afterwards shooting

pain in chest from l. to r. side. At 1 p.m. tenderness (for some m.) at spot on l. side of thorax. Afternoon, while walking, transient stitches in both knees, great prostration and feeling of anxiety. At 10 p.m. (in bed), wandering, tensive pains in all limbs and joints, most severe and lasting in middle of l. side of thorax, causing sensation as though constricted when taking deep inspiration. After 10 p.m., fell asleep, dreaming that he was unable to walk from severe pain, and on awaking had really shooting, scraping pain on outer side of ankle for ¼ h. Pains wandering through all limbs and joints till 12 p.m. Sleep restless and disturbed by dreams; towards m. slept quietly, and on getting up felt only slight traces of wandering pains. 13th.—Took, at 9 a.m., 60 dr.; nausea as usual, and after 2 h. the peculiar pains, which, however, were scarcely noticeable by afternoon, though he was driving over rough road; almost free of pain during n. 14th.—Without medicine. Pains immediately after getting up. At 9 a.m., pain settled in l. shoulder-joint for an h. Later, shooting pain under last ribs r. side, extending once into r. loin; then recurring in former parts, and gradually declining till 9 p.m. During whole forenoon, dull headache (he had never before suffered from headache). Urine throughout day less in quantity and darker than usual; constipated stool, only every 2nd d. 15th.—Took, at 6 a.m., 80 dr. of freshly prepared tinct. After 2 h. pains in limbs lasting whole d., worse from movement, scraping pains in long bones, aggravated by driving in carriage. Towards e., shivering, unusual sense of fatigue, great weakness in knees when going upstairs, transient stitches through chest, singing in ears, quick pulse. N. fairly quiet, slept some hours. 16th, m., pressive, tearing pains in both shoulder-joints, scarcely able to raise and stretch arms from tenderness in region of deltoid. Feverish towards e., but not so severe as previous d. N. quiet. 17th. —Without medicine. Still shoulder pains in less degree, occasional tensive, scraping pain in long bones. Appetite (for dinner) impaired. At 2 p.m., took 100 dr. tinct. Soon afterwards, while driving, scraping, tensive pain in both forearms, pressive and powerless feeling in shoulders, occasional severe stitches through chest. 5 p.m., great feeling of fatigue as though after a long walk, especially noticed on going upstairs. Frontal headache and whizzing in ears. 18th.—Without medicine. Same symptoms continued, tired feeling in knees and thighs. 3 p.m., while driving, severe pains in all ligaments, relieved after drink of cider. 19th.—Pains in limbs and weakness in less degree; dull, tensive pain in l. calf, less felt when walking. E., sore-throat with slight redness and difficulty of swallowing. 20th.—Not yet free from B. symptoms; took 120 dr. tinct. After ½ h., headache, whizzing in ears, and general depression, knees and thighs feel completely exhausted; burning on middle of upper lip with eruption of round, large vesicles. 21st.—Same state. Vesicles on lip (½ line in diam.), pains most felt in knees and shoulders. 22nd.—Eruption on lip dried up. Exhaustion and pains less. Balanitis lasting 4 d. (action of Bry.?)

b. June 10th (after interval of perfect health), M— took at 3 p.m. 150 dr. tinct.; immediately nausea and flow of bitter saliva. After 2 h. slight drawing pain in fingers of r. hand and instep of l. foot. In e. dull frontal headache; n. quiet. 11th, forenoon, quite well; at

3 p.m., took 200 dr. tinct.; immediately, great nausea and eructation. 8 p.m., soft stool, followed by 3 painless loose motions and discharge of offensive flatus; sleep disturbed by dreams. Next m. on getting up very tired and prostrate, so that when going about he had to drag his limbs. Head confused whole afternoon. Towards e. slight pains in shoulders, upper arms, and phalanges.

c. 16th.—Took 200 dr. 1_x dil. In 2 h. the well-known B. pains in limbs and joints, increasing till noon, and affecting mostly r. side; in e. pressive pain deep in r. orbit aggravated by pressure on eye. 17th.—Pains during early part of day. 1 p.m., painful stitches in r. knee and r. ankle. 3 p.m., took 120 dr. Pains same as from previous doses, almost exclusively r. side. 18th.—Without med.; pains continue, affecting also l. side; head much confused, feeling very tired. 19th, 300 dr. In 2 h. usual joint pains, also in r. eye. 20th, forenoon, severe tearing, scraping pains in r. ankle, lasting 10 m. 2 h. later similar pains in upper arm. 3 p.m., 1000 dr. Immediately nausea, and unsteady gait; after 2 h. drawing, scraping pains in joints and ligaments, complete exhaustion. The B. symptoms ceased only after 10 d. (*Ibid.*)

8. Provings under Dr. Mayrhofer's superintendence:—Johanna B—, girl, æt. 21, healthy, except chlorosis two years ago. May 30th.—Took, at 9 a.m., 5 dr. tinct.; griping and distended feeling in stomach, extending to abdomen. 31st, 10 dr.—Same symptoms, and after 15 dr. at 3 p.m. drawing, stretching pain in r. shin bone lasting ½ h. and going off while walking. June 1st, at 8 a.m., 20 dr.; after 3 h. painful tympanitic distension of abdomen lasting 5 h., disappearing after two soft motions. (*Ibid.*)

9. *a.* Anna Maria M—, æt. 34, married, mother of 5 children, sanguine temperament, tall and slender, liable to rheumatism in face and teeth, otherwise healthy. May 24th, at 9 a.m., took 5 dr. without effect; e., took 10 dr. After 1 h. throbbing of r. upper eyelid and eye for 5 m. In region of r. ovary, severe pain as if part were torn or wrenched, extending to thigh. 25th.—Took, at 6 a.m., 15 dr. After 4 h. severe colicky pain extending from sacrum over hypogastrium; abdomen distended; this pain lasting 2 h. and passing away after soft evacuation and discharge of flatus. E., 15 dr., followed by griping and gurgling in abdomen, and tympanitic distension. Sleep much disturbed. 26th, at 6 a.m., 20 dr.; colicky pain as if from flatus whole d. Pain in r. ovary aggravated by touch. E., 25 dr. Sleep disturbed by colic and ovarian pain whole n., occasional cramp in calves. 27th.—Abdominal pains ceased after hard stool and discharges of flatus. Forenoon, drawing, tearing pains in both upper arms, and r. forearm. Afternoon, feeling of great prostration. 3 p.m., 30 dr. Immediately distension of stomach and eructation of flatus. 1 h. later severe drawing, stretching pain in dorsal vertebræ at part where spinal curvature had been fourteen years ago; pain, with difficulty of breathing, through chest towards lower end of sternum. Pain in r. forearm. 28th.—Took, at 6 a.m., 35 dr. Soon afterwards squeezing pain in stomach, shortly giving place to colicky pain, as if bowels would act, but no motion. Pressive and digging pain in abdomen, more or less whole day. 2 h. after taking dose drawing, tearing, or scraping pain in

little finger of l. hand and l. great toe. 29th.—Took, at 7 a.m., 40 dr. Immediately, painful distension of stomach, and later of whole abdomen, which, however, declined during d. Occasional pressive tearing pain in forearms, general lassitude. E., scanty, hard stool. Sleep disturbed by flatulent colic. 30th.—Nearly same symptoms. 31st.—Pressive tearing pain in forehead over r. eye alternating with, after 2 h., severe drawing pain in decayed tooth r. side, lasting ½ h., followed by pain gradually extending over whole forehead, during d. June 1st.—Took, at 6 a.m., 45 dr. Immediately flatulent distension of stomach and abdomen, frontal headache and great prostration. 2nd.—Same symptoms. 3rd.—Took, at 6 a.m., 50 dr. After 1 h. severe shivering and loss of strength so that she could not leave bed for 3 h.; prostration lasted 3 d.

b. After interval of 8 d., during which she was quite well, on June 11th, took, at 3 p.m., 60 dr. tinct. Nausea, distension of stomach and later of abdomen; towards e. headache with signs of incipient catarrh; painful swelling of hæmorrhoids. 12th.—Headache and nasal catarrh. 3 p.m., 100 dr. Nausea and eructations, flatulent distension of abdomen, want of appetite, general prostration, restless n. owing to nasal catarrh. 13th.—Same symptoms; catarrh is better in open air than indoors. Symptoms ceased in a few d. (*Ibid.*)

10. Dr. Reisinger took for first time on May 15th, 1844, 5 dr. tincture, increasing dose by 5 dr. daily up to 26th, when he took 50 dr. Medicine taken in water ½ h. after breakfast each d. 50 dr. were then taken every 3rd d. till June 17th. No particular symptoms, except 3 or 4 fluid motions daily, followed by burning in anus. June 17th, 60 dr. Diarrhœic, bilious, acrid stools, rawness of anus for 8 d. June 24th, 60 dr. Beyond diarrhœic stools, 2 or 3 in d., no symptoms. July 1st, 90 dr. Nausea, eructations, diarrhœa without griping for 6 d. July 7th, 100 dr. Nausea, vertigo, confusion of head, tasteless eructations, fulness in stomach, tension of abdomen, bilious fluid motion (twice). At noon, little appetite; afternoon, great sleepiness; e., quite well; n. very restless. 8th, 9th, and 10th.—Without medicine; no symptoms, except slight frontal headache, and flatulence in abdomen. July 11th, 120 dr. Nausea for some h., excessive flow of saliva, no appetite, desire for wine, which relieved sickness, pressure in stomach, eructations, diarrhœic stools followed by pricking and burning in anus, ill-humour. 12th and 13th.—Without medicine; discomfort from flatulence, tendency to diarrhœa, rheumatic pains in r. upper arm. 14th, 160 dr. Immediately inclination to vomit, coldness in face; after some time bitter taste, accumulation of saliva, head confused and as if screwed in a vice, continual eructations, at first tasting of B., later tasteless, fulness of stomach and distension of abdomen, not relieved by eructation, tympanitic distension of abdomen, rumbling (without griping) in intestines, discharges of offensive flatus, distaste for nearly every kind of food and beer, desire for warm meat soup, after taking which urging to stool, 3 fluid greenish-brown motions, without pain, but expelled with force, followed by burning in rectum, great sleepiness and yawning (though he had slept well previous n.). Fatigue and stiffness of limbs, especially lower; disinclination for work; desponding humour. After e. meal, liquid

stool; tension of abdomen less severe. Sleep restless, exciting dreams The following symptoms lasted some d.: confusion of head, insipi sweetish taste, defective appetite, frequent griping in abdomen abov umbilical region, 2 or 3 diarrhœic stools during d. After other sym- ptoms had ceased, the irregularity of bowels and restless sleep still noted

b. Oct. 2nd, Dr. R— took, fasting, 100 dr. 8x dil. Slight confusion of head with distinct pressive pain over l. eye, momentary, but twic recurring; insipid sweetish taste; eructations tasting of medicine. 4th 100 dr. 7x. Slight pressive supra-orbital pain, l., extending to r. drawing, laming pains, and heavy feeling in r. upper arm for ½ h. eructations (tasteless), painless rumbling in abdomen; restless sleep 6th, 100 dr. 6x. Confusion of head, especially frontal region; cold in head, frequent sneezing; insipid taste; eructations (almost taste- less); transient sensation of heat in chest; slight feeling of pressure i region of false ribs, both sides; discharges of offensive flatus from bowel 7th, early, somewhat severe painful stitches inner side of l. knee. 8th 100 dr. 5x. Soon afterwards similar pains in knee, but less severe empty eructations; uneasy feeling in region of stomach, with distensio of abdomen; normal stool; e., while writing heavy feeling in r. arm sleep restless. 10th, 100 dr. 4x, and on 12th 100 dr. 3x. No particula symptoms. 14th, 100 dr. 2x. Nauseous taste, eructations, accumula- tion of saliva; distension of abdomen, relieved by passing offensive flatus pressive pain in frontal region, thirst, slight shivering, followed by heat sleepless n. 15th, 100 dr. 1_x. Confusion of head with pressive pain i temples and forehead; nausea; 2 h. later, eructations, bitter taste accumulation of saliva; distension of abdomen; rumbling in bowels 2 d. without stool; heavy feeling and slight tension in r. upper arm discharge of mucus from nose and bronchi; feeling of prostration (*Ibid.*)

11. *a.* Dr. SCHWARTZ began proving of tinct. May 18th, 1844, i doses of 3 dr. *per diem*, daily increasing up to 140 drops on May 28th During first 10 d. probably no effects, as no symptoms are recorded 29th, forenoon, pressive tearing pains in both forearms, which ceased i l. about 3 p.m.; pressive pain in l. supra-orbital region for ½ h.; dul pain in occipital region extending over whole head, more or less sever during d., worse while walking and after food; throbbing in head. Jun 2nd and 3rd, in e., severe stitches at outer angle of r. scapula. 5th.— Severe pressive tearing pain between 6th and 7th rib close to sternum r side; throbbing pain in r. clavicle. 8th, noon, fine painful stitches i region of l. deltoid. 11th, 10 a.m., general lassitude, limbs tired; pres sive pain in forehead and occiput, worse from moving; tongue white coated, insipid taste, loss of appetite, thirst; ribs painful; tired feelin in sacral region; transpiration lessened; pulse quickened by 10 beats urine more abundant and hot.

b. On August 21st S— began again with 30 dr. No symptoms On 26th, 6 dr. For 3 d. severe stitches in deltoid muscle and l. ches (intercostal muscles). On 30th, 60 dr. No symptoms. Sept. 1st 120 dr. Nauseous, bitter taste all d., eructations tasting of medicine After 2 h. slight pinching and rumbling in bowels, followed by liqui stool with flatus, repeated twice within 1 h., after which burning i

anus. 18th, 80 dr., and on 24th 140 dr. Soon nausea, severe pain and rumbling in bowels, liquid stool; till 6 p.m. severe griping, then two copious liquid stools with pressure, followed by burning in anus.

c. Nov. 20th, 20 dr. of 6x dil. 21st, 30 dr. m. and e. without any effects. 24th, 50 dr. of same. After 2 h. feeling of constriction r. side of chest, especially on deep inspiration, dull stitches in region of 5th and 6th ribs reaching to sternum, r. side, aggravated by movement. 25th, 50 dr. Same effects. 27th, m., 100 dr. Feeling of oppression in sternal region to r. axilla, impeding deep inspiration; constriction in r. chest, several painful stitches in axillary glands. In e. 100 dr.; no effects during n. except that urine was scanty. 28th.—Without medicine; similar chest symptoms, but less severe. 29th, e., 200 dr. After 9 h. uneasy state of bowels, rumbling, then soft stool and discharge of flatus. 30th, 300 dr. at 10 a.m. At 1 p.m. cutting and griping in bowels, making him bend double, relieved by copious soft stool. (*Ibid.*)

12. Dr. WACHTL took on 21st May, 1 h. after (milk) breakfast, 100 dr. of tinct. in water. After 1 h. pressure in concha of r. ear, slight drawing pain from both temples towards zygoma, strong pulsation of carotids, pressure towards anus. During n. throbbing pressive headache towards temples. 22nd, m., on getting up, both knees tired and powerless, worse from moving; drawing sensation in both groins, later burning in r.; in afternoon this feeling extended to inner surface of thighs. E., itching of skin and diminished sensibility of upper arms. 24th, forenoon, drawing tearing pain (for some m.) from r. temple to zygoma, also extending to muscles of neck and upper back teeth. Afternoon, over-stretched feeling in upper arms and thighs; e., fixed tearing pain in l. sacro-iliac joint. 25th, m., in bed, severe tearing stitches in l. knee-joint, later similar pains in elbows and r. middle toes. 26th.—Tearing drawing in l. knee-joint, middle l. toes, both elbows and flexor surfaces of both thighs. 28th.—Feeling as if scalp were stretched painfully tight over head. 29th.—Eyelids somewhat agglutinated, burning in r. inner canthus. Afternoon, frequent sneezing, tickling in larynx and hard shaking cough, lasting some m. while sitting, dull stitches through region of liver. 31st.—After simple meal, distension of abdomen, lassitude while walking; sudden coughing with expectoration of yellow-greenish mucus. 10 p.m., on spot of skin in region of 1st dorsal vertebra, burning pain (as if from sting of nettle). June 1st, forenoon, while walking sudden severe tearing pain in r. foot (instep), aggravated by movement. 2nd.—Dull pain through l. chest as if from lower angle of scapula towards sternum; felt need of breathing deeply. Action of dose of May 21st seemed to continue until June 20th, lessening, but continuing characteristic. On 7th, vertigo; for ½ h. tearing stitches in bladder extending to bulbous portion of urethra, momentarily preventing urination; occasionally tearing, drawing pains in upper and lower limbs and in ligaments; pressive pains in temples and occipital region; constipation.

b. 27th June, W— took at 8 a.m., ½ h. after (milk) breakfast, 200 dr. of tinct. 2 p.m., while walking, shooting pains in coccyx; after dinner, slight vertigo, distension of stomach, urging to stool, soft

motion. While walking, heaviness of lower extremities; e., twice urging to stool, but no action. July 7th, forenoon, tearing stitches in l. chest from behind forwards, worse from movement and deep inspiration; tearing pain in abdomen, l. side.

c. Oct. 2nd.—Took at 7 a.m., before breakfast, 10 dr., 1_x dil. About 11 a.m., slight drawing pain from temples to zygoma, especially l., extending once to l. jaw. After dinner diarrhœic stool; after 1 h., slimy stool, followed by burning in anus; frequent urination with burning in urethra. E., three slimy evacuations. Oct. 4th, and 6 following d., 10 dr. of same. On 4th.—Tensive pain in temples, and soon afterwards copious soft stool. 5th.—Two liquid stools; tensive feeling in hollow of knee, later tearing pain in shins for some m. Afternoon, stool followed by slight burning in anus; secretion of urine distinctly increased, sudden urging to urinate; towards noon, severe stitches in axilla; (quite contrary to habit) slept 3 h. after dinner, lively dreams; on waking, dull stitches and oppression in chest about 5th rib near sternum; hawking of disagreeable mucus in throat; dryness of palate as if covered with tough mucus. 6th.—One h. after taking medicine, thick stool with drawing and pressure in sacrum; pressive pain in occiput with drawing in nape; noon, pressive pain in temples and forehead; e., in bed, shuddering of lower extremities, skin of which felt cold; after being warmly covered, severe tearing stitches in r. knee, several stitches in l. shoulder. 7th.—Vertigo; towards noon, occasional tensive pain in muscular sheaths of upper and lower extremities; slight burning with stool and when urinating; severe burning and watering of r. eye; whizzing in ears; stitches in joints of little finger l. hand. Afternoon, while lying, dull stitches between shoulder-blades, burning stitches l. heel at insertion of tendo Achillis. 8th.—Pressure and drawing in loins and temples, especially after dinner; tearing and drawing pain forearm and foot. E., while sitting dull stitches through chest and abdomen (umbilical region); four scanty stools with slight pressure. 9th.—Compressive pain in temples, alternating with similar pains in occipital region; soon after eating, cold feeling in back extending forwards towards axillæ and forearms, with simultaneous severe pressure in scrobiculus cordis; several stitches in ribs r. side. At 10, cold feeling in spine with tearing pressure in back and loins (muscles), lasting whole d., better when moving. Afternoon, three fluid stools. 11th.—Without medicine. Soon after breakfast frontal headache aggravated by stooping; skin felt hot, and perspired readily. 12th.—Without medicine. Severe twitching and tearing pain in region of last lumbar vertebræ and sacrum; muscles of loins sensitive to contact or tight clothing; fulness, as from incarcerated flatus, now towards region of stomach, with urging and pressure, now backwards, more or less all d., better walking about and bending backwards, worse stooping. Pain in loins for next 3 d.

d. W— took on Oct. 21st, at 7 a.m., 1 h. before breakfast, 10 dr. of 6x dil. Towards 9 a.m., tensive, pressive sensation in l. temple; later, tearing in l. knee extending to shin and foot. After dinner, severe pressure in stomach as if from a stone, recurrence of knee pain worse from motion. E., pressure in fore part of brain toward forehead and l. eyeball, especially on stooping. 22nd.—This headache all d.

After dinner when sitting squeezing tearing in r. calf of short duration; when writing, twitching tearing in middle knuckle-joint of r. hand; marked hoarseness all d.; retarded stool followed by twitching and stitches in anus. 23rd, 10 dr. Profuse lachrymation, r. conjunctiva reddened, lids agglutinated at outer canthus; drawing and tearing in r. elbow-joint and forearm to wrist. After dinner, dryness of palate, distension of abdomen, nausea; afternoon, great lassitude, ringing in ears with impaired hearing for 2 h.; e., chilly feeling in l. thigh. 26th.—Without medicine. Headache somewhat less severe. After eating hiccup, and on every shock caused by it pressure in forehead, as if brain shook from behind forwards. 27th.—Without medicine. One h. after eating, stitches and pressure under sternum, worse from movement and deep inspiration; later, dull stitches in r. groin; chilly feeling in l. thigh. 28th.—No symptoms except fine stitches under nail of little toe of l. foot.

Wachtl states that some of the symptoms continued until the middle of November. (*Ibid.*)

13. *a.* Dr. WATZKE took on May 24th, 1844, 20 dr.; 25th, 40 dr.; 26th, 80 dr.; and 28th, 80 dr., of tinct. E. of 26th and 27th, on lying down, uneasy feeling as if chest were contracted, thorax painful, rapidly repeated heaving respiration. 28th.—Stool very constipated (contrary to habit); afternoon, repeated severe twitching stitches in both temples, extending sometimes over l. parietal region.

b. June 13th, W— took at 8 a.m., after chocolate breakfast, 100 dr. of freshly prepared tinct. of B. dioica. In ½ h. afterwards while out walking uneasy movement in stomach and constricting sensation in throat; sudden vomiting lasting 5 m., this repeated twice afterwards at interval of ½ h., accompanied with painful scraping and constricting sensation in stomach; vomiting at first painless, vomited matter being chocolate, water, and mucus, tasting of what had been taken; later vomiting (with difficulty) of yellow, thick tenacious bitter fluid, ceased after taking a basin of warm soup. At noon good appetite. No further symptoms except great tendency to vomiting, and jaundiced aspect, both lasting a long time.

c. April 5th.—Took 5 dr. tinct. B. alba. Soon afterwards pressure and contracting sensation in stomach; between 4 and 5 p.m. painless twitching and contraction in l. upper eyelid every 2 or 3 m., sensitive heavy feeling remaining in it; n., restless sleep, free perspiration; unusual lassitude next d. 6th.—Took 10 dr. tinct. on sugar after breakfast. After ½ h. sensitive pressive pain (coming and going) in l. eyeball, especially violent on moving it, with feeling as if eye became smaller and was retracted within orbit. After eating severe sickness as if from abdomen; anxious feeling; disinclination for food, but taste not changed. Towards e. tenderness of scalp, jerking stitches on vertex, elbows, wrists, and especially severe on several spots of forehead; teeth sensitive; irritable mood, desire to be alone. When going to sleep, a feeling as if chest were contracted; chest somewhat sensitive. N. again restless; next m. sour eructations tasting of fish eaten previous n.; at noon good appetite again. The pressive pain in eyeball recurred frequently towards e. on this and following d. 9th,

noon, 10 dr.—Immediately twisting in umbilical region and slight sickness. After some h. pain in r. temple; a tensive twitching in muscular fibres, lasting a few seconds; part very sensitive, pain recurring several times during ½ h. Towards 8 p.m. pain recurred on same spot, lasting almost 1 h., also occasionally slight twitching in r. upper eyelid; transient recurrence of pain during following 8 d.

d. During April, May, and June, Watzke took every 4th or 7th d. a dose, increasing by 5 dr., up to (June 21st and two following d.) 50 dr. Stitches through chest, especially twitching headache (temples). During last two months a skin eruption has appeared, first on sacral region, extending to back, chest, and forearms; rash consisting of groups of vesicles, which dried up, leaving red and scaling skin; occasional itching, especially during active movement. Eruption declined in July and disappeared during August. (*Ibid.*)

14. Dr. WURMB took on June 3rd, 1884, at 6 p.m., 100 dr. of tinct. No symptoms. 7th, at 5 p.m., 150 dr. Nausea during e., distaste for food, n. restless, sleep disturbed by exciting dreams, waking often, with chilly feeling in toes. 8th.—Without medicine. In m. scanty stool. 9th.—Without medicine. No action of bowels; n. restless, waking often after exciting dreams. 10th.—Without medicine. In m. scanty stool only after much straining; tearing in first joint of r. thumb, and last joint of r. great toe, frequently during d.; afternoon, sore throat (pressive pain in r. tonsil on swallowing), at same time stitches in r. ear. 12th, at 5 p.m., 200 dr. Scraping sensation in throat during e. 13th.—Without medicine. In m. edges of eyelids (especially r.) swollen and reddened. Forenoon, discharges of offensive flatus. —Afternoon, hard scanty stool. 18th, at 6 p.m., 250 dr. Soon afterwards frequent sneezing. 19th.—Without medicine. Scanty stool. 20th. —Without medicine. No action of bowels. 21st.—Scanty stool; head more or less confused all d. Afternoon, pain in l. temple pressing from within outwards. 22nd, 23rd, and 24th.—Without medicine. Several copious stools each d., almost diarrhœa. July 3rd, at 5.30 p.m., 300 dr. 4th.—Without medicine. No action of bowels, unusual frequency of micturition. 8th, at 8.30 a.m., 20 dr. Soon, confusion of head which gradually developed into severe pressive pain, especially in l. temple, worst about 5 p.m., also sickness; over-sensitive hearing and hissing in l. ear. 9th, at 8.30 a.m., 20 dr. Discharge of flatus. Afternoon, severe urging to stool, but only flatus passed; rumbling in bowels for ½ h. 10th, 20 dr. No symptoms. 11th, 20 dr. Scanty stool; frequent sneezing. 12th, 20 dr. Scanty stool; sneezing. 13th, 20 dr. No symptoms. 24th, 50 dr. 25th, 8 a.m., 50 dr. At 3 p.m., severe cutting pain in bowels, urging to stool, copious papescent evacuation and flatus; confusion of head, worse when walking. (*Ibid.*)

15. On May 16th ZLATAROVICH began proving of tinct. with 8 dr. every m. till 23rd without effect. 24th, 30 dr. After 2 h. uneasiness in stomach with distension of abdomen; tensive pain in r. shoulder. From 25th to 29th, 30 dr. daily; no symptoms. 30th, 40 dr. Forenoon, severe headache, especially in frontal and parietal regions. 31st, 40 dr. Feeling of pressure in hæmorrhoidal vessels. June 1st, 40 dr. After breakfast sickness, accumulation of saliva in mouth, chilly feeling

and general uneasiness; griping in bowels, followed by liquid evacuation forcibly expelled; after eating another fluid motion followed by burning in anus. 7th, 15 dr. After 1 h. feeling of uneasiness and lassitude; soft stool and later fluid motion of rancid odour, then burning and soreness in anus. 9th.—Without medicine; immediately on waking soft stool, followed by burning in anus; after ½ h. fluid stool; towards noon burning, compressive pain in stomach, compelling him to bend double, increased by deep inspiration, short intervals of relief, then recurrence of more severe pain; accumulation of saliva in mouth; pressive pain in both axillæ and in r. hip; head momentarily confused, somewhat later pain in bowel with urging to stool, hard motion; bruised feeling in loins; slight drawing in pectoral muscles. 10th, 15 dr. Forenoon, while sitting and speaking oppressed feeling in chest; voice higher pitched than usual. 11th, 15 dr. After 1 h. pressive burning pain in stomach lasting 1 h. Towards noon abdomen distended, breathing oppressed; while sitting crampy pain in sole of r. foot. After eating tensive pain in loins. 12th, 20 dr. Immediately pressure in stomach with tension and burning in r. side of chest, increased by moving arm. After 4 h. drawing and tearing in r. shoulder and upper arm, relieved by movement, worse at rest. 13th, 25 dr. Awoke at 6 a.m., after good night's sleep, with severe tearing pain in r. shoulder, axilla, and upper arm, which he was scarcely able to move; after getting up pain gradually declined and in 1 h. ceased. At 11 a.m., while walking out, pain in arm recurred, but not so severely, and alternating with similar pain in r. hip. Afternoon, indoors, pain only in shoulder-joint, but so severe that he could scarcely move arm; after ½ h. pain ceased, succeeded by formication along ulnar nerve, and chilly feeling in all limbs; little appetite for dinner, after which uneasiness, general irritability, confusion of head, and pressure in loins; after ½ h. tearing in r. shoulder, powerless feeling in arm, unable to grasp firmly with hand, on attempting to write severe pain in shoulder-joint, pain in sole and little toe of l. foot; stiffness of pectoral muscles on deep inspiration. 14th, 25 dr. On awaking, tensive pains in sacral and lumbar regions; tickling in larynx and dry cough; frequent sneezing; pains in r. arm; towards e. severe distension of abdomen. 15th, m., cough several times with expectoration of gelatinous mucus; raw painful feeling between 7th and 9th ribs l. side, worse from touch. At 11 a.m., burning pain 2nd toe l. foot. 16th, m., 25 dr. Soon afterwards papescent offensive stool, uneasiness and distension of abdomen; confusion of head; occasional pressive pains in forehead, temples, and occiput; hypogastrium felt heavy; pressure in stomach, insipid taste; silent and moody; tearing pains in cervical muscles to axilla l. side. 17th, 25 dr. in forenoon. Pressure and drawing in lumbar muscles, even lumbar vertebræ seemed painful; feeling in r. patella as if he had knelt a long time. 18th, 25 dr. in forenoon. Diminished sensibility in lumbar and sacral regions, so that muscles acted automatically, for 1 h.; inner condyle of r. femur rather painful; after dinner head confused and heavy; e. unusual dryness of mouth, palate, tongue, and lips. 19th, 25 dr. No symptoms except two fluid stools. 20th, 25 dr. Severe pain in r. thigh extending along anterior surface to knee, worse from movement,

when it becomes drawing and tearing, powerless feeling when at rest; during past few d. several inflamed pimples (painful on pressure) have appeared on back and face, chiefly forehead; after dinner pain in thigh better, but worse again in e., and the part sensitive to touch. 21st, 25 dr. After having slept well during n. awoke with severe pressive headache, worse in frontal region; after getting up, aching over eyes, but soon going off, and only recurring slightly at intervals during forenoon. 22nd, 30 dr. Soon afterwards nausea, accumulation of saliva in mouth; burning pain in stomach (only for a short time), belching of flatus; abdomen heavy and distended. 23rd, 30 dr. Forenoon, abdomen distended; burning in anus. 24th, 30 dr. Soon afterwards distension of abdomen; after 2 h. severe burning, twisting pain in stomach; great thirst; after drinking Vistula water, disagreeable saltish taste for some time; noon, while walking, profuse perspiration, especially on face. 25th, 30 dr. At intervals during forenoon, burning and pressure in stomach; drawing in muscles of face; great thirst, desire for wine. At 2 p.m., burning on anterior surface of r. shinbone. 26th, 30 dr. Soon afterwards sore feeling in all pectoral muscles, which are sensitive to touch; burning in anus after normal stool; dry cough occasionally; slight drawing pain in hips and gluteal region; afternoon, when stepping, pain in two toes l. foot. 27th, 30 dr. After ½ h. pressive pain in stomach, weight in abdomen; constricted feeling in chest; heavy sensation in scapulæ; nausea, eructations tasting of B. 28th, 30 dr. Soon afterwards general uneasiness and lassitude; abdomen distended; much flatus discharged; irritable mood; no appetite for breakfast; slight drawing pain in r. arm; breathing somewhat oppressed; drawing between shoulders. After 1 h. pressive pain in different parts of chest; feeling of heaviness in lower extremities; constriction of anus; depression of spirits; sleepiness; hollow tooth in l. jaw and adjoining gum sensitive to contact of tongue; later, while sitting stitch through r. chest between 3rd and 4th ribs; flickering before r. eye after dinner and appearance of prismatic colours; every object seemed thus tinted; vision dull for some time afterwards; photophobia; head confused. 29th, 30 dr. Soon pressure as from a stone in stomach, passing off with rumbling and pinching in bowels; constriction of chest; tension in pectoral muscles; e., while walking, unusual perspiration; breathing accelerated. 30th, 30 dr. In m. feeling of weight in sacral region and pressure in hæmorrhoidal vessels; pappy bitter taste. July 1st, 30 dr. Forenoon, feet somewhat heavy; slight drawing pain r. upper arm and r. thigh; during and after dinner ill-humour without cause; drawing pains in lumbar and sacral regions. 3rd, 30 dr. Soon afterwards nausea; lassitude and depression; frequent eructations (of flatus); drawing in thighs; forenoon, stitches from back through chest; drawing pain in r. pectoral muscle; after dinner pressure and burning in stomach. 4th, 30 dr. After ½ h. burning pain along anterior attachment of diaphragm for 1 h.; lassitude; distension and tightness of abdomen; burning in anus; dry congh. 5th, 30 dr. Soon afterwards uneasiness in stomach; accumulation of saliva in mouth; constriction of lower half of chest; frequent sighing; slight drawing pains in l. hip; after dinner severe aching in hæmorrhoids. 6th, 30 dr. No symptoms. 7th, 40 dr.

Towards noon urging pressure in rectum (without stool); slight drawing pain in middle of r. upper arm, also in l. arm and l. side of chest. 8th, 40 dr. Noon, little appetite; after dinner abdomen distended; while walking feeling of tension in thighs rendering movement difficult; pressive burning pain in stomach; exhaustion of intellectual powers; hawking of mucus from throat. 9th, 40 dr. Soon afterwards drawing and stiffness in muscles of neck r. side; mouth and lips dry; pressure and burning in hæmorrhoids. At 11.30, suddenly, humming in ears. 10th, 40 dr. After ½ h. pressive pain in hip-joints, worse from movement; afterwards pain in l. groin; transient stitches in thighs; towards noon pressive pain in cardiac region; after dinner great distension of abdomen; confusion of head; thirst; pappy taste. 11th, 40 dr. Forenoon, tension in back and sacral region; slight pressure in hæmorrhoids. 12th, 40 dr. Soon afterwards tearing and drawing in both legs, especially r. knee, which is painful to touch; bruised sensation in 2nd rib, r. side, to sternum. After 1 h. sickness; general uneasiness and lassitude. Afternoon, tension and pain in r. knee, so severe in e. that he could scarcely walk, inner side of knee tender to touch. 13th, 40 dr. Again pain in r. knee; tension in pectoral muscles; breathing sometimes heavy; eructations. 14th, 40 dr. Frequent hawking of thick mucus; pappy taste; drawing in sacral region; tension in r. thigh; slight drawing between shoulders, more towards r. 15th, 45 dr. Immediately nausea; accumulation of saliva in mouth; after 2 h. stitches as from needle piercing to the bone in l. upper arm, r. thigh; breathing oppressed and quickened; frequent hawking of thick mucus; abdomen distended; scalp as if over-stretched and sensitive; general uneasiness; no appetite; sleepy. 17th, 50 dr. Peculiar piercing pain in r. side; hawking of thick mucus. 18th, 50 dr. After dinner pressure in hæmorrhoidal vessels; distension of abdomen; heartburn. 20th, 50 dr. Pressive pain in lower chest backwards; oppression of chest while walking; weary aching of legs; burning in stomach; fine stitches over r. eye; pain in l. ankle while sitting; after dinner fluid stool, followed by pain in sacral region. 21st, 50 dr. Only slight reminiscences of previous symptoms. 22nd, 50 dr. Hard stool, followed by drawing and heaviness in sacral region; powerless feeling in l. shoulder, hindering movement of arm; heartburn. E., while out sensitive pressive pains around r. eye; pressive feeling in lower ribs r. side; burning in hæmorrhoidal vessels; confused feeling in head, beginning in temples; drawing in occiput and nape. 23rd, 50 dr. Immediately retching; tensive pain in r. shoulder; during whole d. ill-humoured, irritable, anxious; urine diminished in quantity. 24th, 50 dr. Soon afterwards feeling of constriction in chest (upper half); tensive pain in r. axilla; heaviness and tension in r. thigh; burning in abdomen; irritable, restless, discontented with everything. Afternoon, weakness of stomach, slight retching; discharge of flatus. 25th, 50 dr. During n. discharge of mucus from anus. Forenoon, slight pressure in stomach; disagreeable taste; constricted feeling in chest; drawing between shoulders. 26th, 50 dr. Soon afterwards weight in hypogastrium. 27th.—Without medicine, redness and swelling of upper lip for 1 h. 28th, 50 dr. Discharges of noisy flatus; for ½ h. constricted feeling in

chest (upper half); hawking of thick mucus; drawing pains in tendons (various parts of body); pressive pain in cardiac region; vertigo. E., pressive stupefying headache; pappy taste; ill-humour. 29th, 50 dr. Awoke with headache, especially over l. eye; after getting up headache moved to parietal and occipital regions and then ceased; nervous irritability; pectoral muscles and thoracic walls so sensitive as to impede deep inspiration; drawing in muscles; soreness in cardiac region; mouth dry; insatiable thirst. 30th, 50 dr. Soon afterwards slight shooting pain r. side of sternum extending even to umbilicus, much aggravated by sneezing; pappy taste; urine scanty; irritability. E., transient oppression of chest with slight drawing pains in thoracic walls. (*Ibid.*)

16. GARAY, æt. 33, sanguine temperament, of strong constitution, began proving on June 6th, by taking 10 dr. of tinct. in m. (fasting). Immediately afterwards dull pain (transitory) in r. temple; 1 h. later throbbing pain on small spot between 10th and 11th ribs r. side; throbbing drawing pain in lower r. incisor teeth and two middle upper incisors; later similar pain in last upper molar r. side; pains in upper arm, wrists, thumbs, shins, and ankles, lasting all d. on r. side, transient on l. side. About 4 p.m., while indoors, shivering, general aching in limbs and lassitude, as if he had had a chill; pains in r. lumbar region. Before midnight nausea, unusual quantity of bright yellow urine passed every ½ h.; after midnight exciting dreams. On 2nd and 3rd d. after taking the medicine, recurrence of pains in r. ankle and great toe; also the frequent urination. June 10th, at 8 a.m., fasting, 30 dr. Towards 5 p.m. drawing pain in two r. upper molar teeth; later slight crampy sensation in region of heart with quickened pulsation. At 10 a.m. next d., suddenly drawing throbbing pain in r. parietal protruberance, relieved by pressure. E., pains in limbs and teeth; drawing pains in corn on l. toe. Sexual desire excited; seminal emission during n., erections almost painful m. 12th.—Throbbing, drawing pains in parietal region extending to forehead; hawking of saltish mucus from throat; pains in nape on movement; pains in joints of hand and thumb. 13th. Drawing, rheumatic pains in different parts of body, especially at insertion of l. patellar ligament, anterior surface of thigh and nape; during n. strong erection and seminal emission, repeated in m. 15th (5 d. after taking medicine).—At noon severe shooting pain for ¼ h. in r. external auditory meatus. June 19th, at 10 p.m., 90 dr. For 2 d. following no particular symptoms. 21st.—Distinct pain in limbs; slight drawing squeezing pain in r. supra-orbital region, with intense itching of eyelid; stitches on small spot (dorsal) between 11th and 12th ribs; drawing and shooting in l. knee, calf, and shin, and between shoulders on moving the body. 23rd.—Shooting pressive pain in r. supra-orbital region, with feeling of weight in eye and itching of eyelid; shooting pain in ears; crampy sensation in cardiac region; slight pinching in abdomen; accumulation of mucus in posterior nares, difficult to detach. 24th—Pains in shin and knee only when walking; pinching in abdomen; stitches in r. spermatic cord. July 1st.—Took ʒiss of tinct. Immediately drawing pains in thumbs and toes; accumulation of mucus in posterior nares and throat; scraping sensation in throat; at intervals tension of

skin on chin and inner side of l. thigh from groin to knee. 2nd and 3rd.—No symptoms. 4th.—Took (fasting) at 8 a.m. ½ oz. tinct.; soon afterwards tired feeling in limbs. 6th, noon, momentary drawing pain in r. great toe and dorsum of foot, extending to shin; similar pain in l. forearm. 7th.—Drawing pains in thighs; shooting pain between 11th and 12th ribs r. side. 8th and 9th.—Crampy sensation in cardiac region; drawing pains in different parts of body, especially great toes and nape. Some B. effects still appeared from time to time, and towards end of month (July) there was hawking of foul mucus (containing cheesy lumps) from throat; feeling in r. elbow as if broken and powerless, pain extending to shoulder; similar pain in thigh. For 5 d. drawing pain in l. hip, shooting through the joint at each step, relieved by pressure on the part. Severe painful stitches in rectum; drawing pressive pain in l. foot hindering movement. For several d. severe shooting pain from 3rd or 4th lumbar vertebra towards both sides of chest, aggravated by deep inspiration; severe itching and burning in anus. The B. symptoms (especially pains in feet) continued for some weeks. (*Ibid.*)

17. *a.* Dr. Würstel took (from June 3rd to 12th) 50 to 100 dr. 6th and 3rd dil. B. dioica; no particular symptoms except rumbling in abdomen, and aphthous eruption on point of tongue for 2 d.

b. W— took on June 17th 20 dr. of tinct. Soon afterwards empty feeling in stomach, and towards noon frequent eructations of flatus; confusion of head. 19th, 20 dr. Frequent rumbling in bowels and urging to stool; soft motion. 21st, 30 dr. During forenoon several attacks of vertigo; while reading suddenly seemed to lose power of thinking. 24th, 30 dr. Vertigo repeatedly; pressive headache from temples towards forehead; rumbling in abdomen. 26th, 40 dr. Scraping sensation in throat as if constricted. Afternoon for ½ h. sudden pain in ball of great toe preventing extension. 28th, 50 dr. Rumbling in abdomen, empty sinking of stomach. 29th.—Without medicine. Severe tearing pain in back (l. side), and towards e. toothache.

c. July 22nd, 50 dr. of tinct. Soon afterwards, empty eructations; towards noon sense of great emptiness in stomach; distended feeling in whole abdomen after midday meal, lasting until e.; sleep disturbed by anxious dreams. 23rd.—Without medicine. Towards noon empty feeling in stomach and rumbling in bowels, soft stool; after eating great distension of abdomen. 24th and 25th.—Without medicine. Still distension of abdomen and rumbling in bowels, but less than during last 2 d. 26th, 40 dr. Forenoon, head confused with pressive pain in temple. Towards noon, empty eructations and head lighter; appetite defective; distension of abdomen after eating, relieved by discharges of flatus; tearing pain in r. axilla, knees, and toes. 27th, 28th, and 29th.—Without medicine. Distension after eating, rumbling in bowels. 30th, 40 dr. Forenoon, digging pain in hollow teeth; great tightness and distension of stomach and bowels relieved by discharges of offensive flatus. Aug. 3rd, 40 dr. Noon, defective appetite. Afternoon, and especially e., great fulness of abdomen as from incarcerated flatus; sudden shooting pains from temples to forehead; tearing pain in teeth l. side; frequent urination. 4th.—Without medicine. During n. disten-

sion of bowels relieved by discharging large quantity of offensive flatus; rumbling in bowels; soft stool; empty feeling in stomach. 5th and 6th.—Without medicine. Bowels constipated; distension of abdomen. On 7th and 10th, 40 dr. Former symptoms reappeared; frequent tearings in various parts of body, especially in toes and r. axilla, with feeling of heaviness on movement. Toes of l. foot became very sensitive, and there were frequent jerkings therein.

d. Oct. 2nd, 20 dr. of tinct. Raw feeling in throat; uneasy as if about to vomit; tension of abdomen relieved by walking; weight in head. 8th, 25 dr. After ½ h. empty eructations; feeling of weight in middle of chest as if breathing were impeded; sweet taste; constipation; tensive pain in l. thigh and hip; powerless feeling in hip-joints when rising from chair, but going off after walking. 9th, 25 dr. Hard stool; drawing pains in both hip-joints and r. shoulder; abdomen distended; immobility of r. ankle (on waking). 12th, 30 dr. Empty eructations; drawing pains in feet; irritable mood. 16th, 30 dr. During forenoon discharges of flatus. Towards e. drawing tearing pain in upper and lower jaw l. side (toothache); alternating drawing in knees, hip-joints and l. axilla. 17th.—Without medicine. Hard stool; abdomen distended; frequent yawning; occasional drawing pains in limbs and joints. 18th, 30 dr. Empty eructations; hard stool. 19th, 50 dr. Head confused, relieved by walking in open air; slight drawing pains hips and knees. 20th and 21st.—Without medicine. Hard stool passed with great exertion; tightness and distension of abdomen, especially after meals. These and the tearing and gnawing pains continued for some weeks; and it was months before the melancholic disposition engendered by the drug finally left him. (*Ibid.*)

18. *a.* Aloys Loewy, dentist, æt. 28, sanguine temperament; had the usual ailments of childhood, and in his 15th year suffered from pleuritis; since then was subject to intermittent fever for several years. From 19 to 26 his health was good; during his 27th year suffered from an attack of jaundice (lasting 6 weeks) after mental anxiety. On May 26th, 1844, L— took 60 dr. tinct. B. dioica; on 28th, 80 dr.; on 30th, 90 dr.,—without any effects. June 3rd, at 10 a.m., 120 dr. Immediately constrictive pain in region of stomach as if that organ were rolled up into a ball; pain relieved after ½ h. by lying and drawing legs up against abdomen; afterwards severe oppressive pain in l. half of chest, as if l. lobe of lung were enlarged, impeding respiration. Lying in bed with ordinary covering soon began to perspire, and fell asleep. On waking pain in chest was decidedly less severe. On getting up and exerting himself, felt so giddy that he was obliged to sit down; vertigo continued for a long time while sitting. After taking warm soup, had bitter eructations and vomiting of yellowish-green liquid, by which relief was obtained. Pain in chest till e. Felt weak and tired, and while walking frequent vertigo relieved by sitting down. During n. frequently awakened by dreams. On following d. no discomfort except confusion of head and bitter taste; easily tired, especially going upstairs. Afternoon, on waking from siesta, constrictive pain in frontal region and heaviness of head, relieved after ½ h. by bathing with cold water. During n. (from June 4th to 5th) disturbed by un-

pleasant dreams and frequent urination; white sediment in urine; eyelids agglutinated. 7th.—Took at 9.30 a.m. 130 dr. At 11 a.m. constrictive pain in region of stomach; griping in bowels. Between 1 and 2 p.m., pressive pain in chest; grumbling in bowels followed by three loose motions without relief of pain. On following d. pressive pain in chest (but less severe); rumbling in bowels and urging to stool.

b. June 22nd.—Took at 9.30 a.m. 215 dr. of the freshly expressed juice of B. alba in ¾ glass of water. Immediately violent retching and vomiting of bitter thickish fluid; bitter taste and nausea ceased after frequent drinking of cold water; constrictive pain in region of stomach extending to the chest; pain became so severe towards e. that he could scarcely stand erect; pain relieved by diligent rubbing of epigastric region; loud rumbling in bowels and urging to stool; yellowish, very offensive motions during night (22nd to 23rd), nearly every h. until 3 a.m., when he fell asleep, but was several times disturbed by action of bowels; burning in rectum after each evacuation. 23rd. —General prostration; head confused and giddy; painful pressure in eyes, especially r.; eyelids reddened and swollen; pappy taste; desire for acids; frequent stitches in l. chest; epigastric region sensitive even to pressure of clothing. Afternoon, tensive pain in sacral and lumbar regions, obliging him to stoop while walking; slight pyrexia. N. of 23rd—24th, restless, awakened frequently by exciting dreams and by involuntary movements of limbs which caused severe pain; unable to stretch owing to severe pain in sacral region; pain aggravated by movement, relieved by bending forwards while sitting. Next m. felt so tired that he could scarcely leave bed; great difficulty in walking and especially going upstairs; severe pain in sacral region and loins extending up spine, and also towards thighs, pain aggravated by raising or extending thighs, and especially by standing erect, relieved by lying with the thighs drawn up; increased secretion of yellowish-red urine; slight pyrexia, pulse full and hard. After warm drinks, perspiration, which brought relief. The following n. very restless; head confused in m.; mist appeared before eyes; burning in r. eyelids; clayey taste in mouth; moderate thirst; loss of appetite; slight feeling of constriction in chest; region of stomach sensitive; rumbling in abdomen; watery offensive stool; sacral region still tender on pressure, but less painful; tired feeling in lower extremities. (*Ibid.*)

19. Dr. Otto Piper took drop doses of tinct. (up to 8 dr.) without effect. After 10 dr. slight rawness of throat. The dose was now gradually increased to 60 dr., and the symptoms induced are thus recorded, probably in order of occurrence:—Slight cough with feeling of rawness and swelling of throat and windpipe (m.); mucous expectoration; sweet taste; rheumatic pains in both shoulders and l. knee; pressive pain in l. inguinal region; copious light-coloured urine; severe burning on inner side of thigh (towards e.) After 60 dr.,—severe oppression in chest; frequent yawning; loss of voice (occasional); dry cough with shooting pain under sternum; cramp of plantar muscles (during n.); pain in l. knee, aggravated by movement; feeling of heat in knee, which is also externally sensitive; copious secretion of

urine (clear or cloudy). After nearly 200 dr.,—severe pain in knee; sudden momentary vertigo (towards noon), followed by bleeding from r. nostril; redness of knee-joints, and formation there of vesicles and crusts. On 9th d. after taking dose, all symptoms had disappeared. (*Ibid.*)

20. A friend of Piper's began with 1 dr., increasing dose daily up to 70 dr. The symptoms (probably in order of occurrence) are as follows:—Nausea immediately after taking dose; four stools daily, softer than usual, thereafter constipation for several d.; copious secretion of clear urine; frequent urination at n.; pressive pain in inguinal region when sitting; dry cough and catarrh; yawning whole d.; severe pressive pain in knee; excoriation of knee-joints during entire proving (more than a week). (*Ibid.*)

21. Feb. 20th, 7 a.m., 20 dr. tincture. No symptoms to-day or 21st. —22nd, 8 a.m., when sitting aching pain in whole l. lower extremity, especially in leg and ankle-joint, must move foot, lasts till 10 a.m., is relieved by walking and goes off. 3 p.m., same pains in r. knee and leg (had a similar pain in l. leg for some days before proving Bry.). At noon when walking an aching pain all round chest recurring after a few m.—25th, 40 dr. In e. when sitting the above bruised pain in l. leg for a short time. —26th, 9 a.m., 50 dr. When sitting bruised pain in knees, legs, arms, and several joints of fingers and toes; tearing in head r. and l.; pressure in r. side of chest; pains all transient and not severe. 7 p.m., when sitting sudden scraping in larynx and dry cough several times. 11 p.m., when sitting pressive pain in l. intercostal muscles.—March 5th, 7 a.m., 60 dr. 10 a.m., slight drawing in l. elbow. E., great bruised feeling in lower extremities.—6th, m., pressure and drawing in r. forearm, later in l. hand and fingers of r. hand. (LEMBKE, *N. Z. f. h. Kl.*, iv, 75.)

22. In good health save for a slight chronic eczema and liability to nettlerash on hands when chilled. Aug. 1st, 1863, at 3.40 p.m., pulse 94 (1 h. after dinner), took 30 dr. of tinct. At 4.15, pulse 92; 4.40, 87; 5.40, 82; 7.33, 74, much weaker and more compressible. After supper (at 7), at 9.40 p.m., pulse 75, fuller and stronger. On 3rd and 8th took 40 and 50 dr. respectively, with little effect on pulse; but always after taking medicine felt light, vigorous, and active ("supple"). On 13th, pain above and behind l. ear. On 14th, before rising, sore feeling about middle of tarsal bone of l. great toe; on walking after breakfast foot became so painful there that he could hardly proceed, getting worse as he went on; ligaments felt sprained. Pain went off while at rest with pleasant sense of burning (as in an injured part when it "stops hurting"), but returned, slightly also in r. toe, on walking, and again less severely at n. 15th, 2 p.m., pain quite severe, feels now more like a bruise, has extended last h. higher up; there is tenderness from an inch above joint of big toe to bend of ankle. 16th.—Foot to-day pains only on walking, on treading with l. foot great toe-joint feeling as if giving way or spreading apart. On 17th pain had extended into tarso-metatarsal joints of all toes save little one. On 18th, pain much worse, constant, but worse on walking, twice felt in l. knee; easier towards e. 19th.—Easier. For several d. skin over tarsal bone of great toe has been swollen and inflamed; this m. hardly at all

so. Soreness seems to be in sheath of tendon, periosteum, and ligaments. There does not appear to be that swelling of joints, stiffness, and dread of motion which characterises rheumatism; but motion always increases pain. Joint continued tender and weak for some time; with occasional pain sometimes extending along metatarsal bone. On 26th, there was still much soreness over this bone, and also swelling, redness, and great engorgement of veins there, so that he took hamamelis. It was not till Sept. 25th that symptoms entirely passed off, last being swelling and tenderness high up on instep. (ELIAS C. PRICE, M.D., *Amer. Obs.*, Sept., 1874.)

23. Dr. T. DWIGHT STOW took, Dec. 7th, 1869, at 8 p.m., 15 dr. of 1_x dil. During first ½ h. noise in l. ear as of water pouring over a dam; heat in pit of stomach, worse on every inspiration; sense of fulness and stuffing throughout chest, with constant disposition to sigh deeply; sensible beating at vertex, and same with fulness in cerebellum; dryness of pharynx, with smarting. From 8.30 to 10 sharp pain in l. occipital protuberance, coming and going constantly; dryness of tongue with sensation of prominent papillæ and fine pricking in anterior 3rd; sensation as of small body lodged about glottis, constant disposition to swallow, with sharp stinging pain externally (r.), on line with promontory of larynx; coryza from r. nostril; slight crampy cutting pains, with heat, in r. hypogastrium, increased by every inspiration; creeping chilliness in back, from above downward. From 10 till 12 roaring noise in r. ear; slight pleuritic pain in both sides of chest, increased by inspiration; rheumatic pain in muscles of r. sacro-iliac region, in r. deltoid, l. trapezius, at and between inferior angles of scapulæ; slight vertigo on raising or bending forward head; increase of pain under vertex, with soreness there as if bruised; frequent emissions of flatus, preceded by dull griping and cutting in bowels; constant sensation as though he must go to stool, seemingly a sense of pressure, heat, weight, and powerlessness of sphincter ani and rectum. Slept soundly, with pleasant dreams; at 6 a.m., sense of plug in anus; at 9 a.m., pulse full and large, but not very quick; slight colic on rising and through forenoon; urine rather scanty and red; dry, parched stools, with effort; tongue thinly coated yellow, with sunken centre, dry tip, and enlarged filiform papillæ. 9th.—Dull aching in lumbar muscles; all d. feeling as though diarrhœa would come on, and constant discharge of flatus; dizziness on turning head; intense craving for oysters and strong coffee; aching, cramp-like, and bruised pains in r. trochanteric and gluteal region, worse at every motion; stools dry, large, hard, and very dark. 10th.—Still lame and bruised feeling in r. hip; tongue and stool same; slight coryza of l. nostril. 12th and 13th.—Stools still dry, large and hard, requiring much straining; laziness and indisposition for work; great sense of insecurity with mental depression and apprehension of future; head feels light (although there is weight on vertex), with constant wabbling in both ears; thirst for very cold water. (*Hahn. Monthly*, v, 359.)

24. At 5.45 p.m., health good, pulse 65, took 10 dr. 2x in ½ oz. of water. 5.50, dull ache in lumbar region followed by aching in r. foot and elbow. 5.52, pain in r. acromion and occipital region. 5.55,

itching in r. knee; ache in back returns. 5.59, dull pain in forehead, afterwards in occiput; itching of hands, afterwards of face. 6, headache in r. temple, afterwards in l.; pinching in bowels, relieved by discharge of flatus. 6.2, itching in r. inner canthus, rubbing aggravates, and causes lachrymation that continues. 6.5, eructations repeated, with salivation; rumbling in bowels. 6.10, dull ache in chest, pain in r. ulnar nerve. 6.15, pain in chest returns, dull headache. 6.20, sharp pain in r. foot and toes when walking; slight cough. 6.25, sharp pain in teeth; pain and rumbling in bowels. 6.30, pain in chest returns, with headache; itching of chest walls. 7.10, pains in r. ankle; slight headache with nausea; cold feet. 7.55, painless hoarseness; pulsating headache. 8, hearty supper relieved weariness; headache increased. 8.30, much flatus and eructations; occasional cough and chilliness when moving. 9, chilliness increased; pulse normal; dull backache and languor returns; respiration oppressed and short from fulness of abdomen. 9.15, felt very tired and weak without cause; dull headache. 9.30, aching in every joint, pulse 90, thirst, pulsating headache on retiring, feet are swollen and damp, old bruises very sore; scant urine; waked at midnight with frightful dreams and crick in back; a sour stomach and much itching kept me awake for some time. 2nd d., pulsating pains in head all d., much lassitude, and rheumatic ache in back and limbs aggravated by exercise. (A. W. WOODWARD, M.D., *communicated.*)

II. *Poisonings.*—1. A child had eaten of berries of red bryony (B. dioica). Mr. Mason found him apparently in great pain in abdomen, very thirsty, hot, and excited; emetics were given, producing copious vomiting and free action of bowels. The following d. pain had ceased, but temp. in axilla was 103°. A saline mixture was given, but for the next 3 d. the temperature kept up, then gradually subsiding, and normal health returning. On first seeing case pulse was very feeble, but after vomiting it increased in power wonderfully. (*Brit. Med. Journ.*, 1883, ii, 1867.)

2. A man drank 2 glasses of infusion of B. root to cut short an intermittent; he was seized with violent colic and diarrhœa, which terminated fatally. (PIGL, *Neue Mag.*, i, 3, 557.)

3. I was called to a lying-in woman, for whom her attendant had prescribed, to check the secretion of milk, a tisane of 30 grms. of B. root to a litre of water, and an enema of a concentrated decoction. On my arrival, 4 h. after this had been administered, I found the patient dead. On inspection of the matters voided into the bed, I recognised the lining membrane of the rectum. (*Gazette de Santé*, 1816.)

4. A man macerated a quantity of B. root in wine for 3 d., and drank it to purge him. M. Lepage found him much prostrated, half-lying on his bed, not vomiting now. Extremities were cold, but mind was clear; he complained of formication in limbs. He was said to have had convulsive attacks, and one soon showed itself. It began by distortion of eyes and tonic contractions of limbs; then came loss of speech, clonic spasms, stiffness of muscles of nucha, opisthotonos, thorax immoveable, and epigastric hollow very marked. Patient

gradually improved, and after some hyper-catharsis became quite well. (*L'Art Médical*, xlviii, 92.)*

5. A man, æt. 63, had taken by mistake about 80 dr. of the homœopathic tinct. of B. Two h. later, having been quite calm and comfortable in the interim, he felt an uncomfortable, tickling, warm sensation in his throat, and then began to vomit. Within a few m. after the supervention of the vomiting he became oblivious of his surroundings, having a feeling as if a piece of gauze had been drawn over his face. He then remembered nothing more, until he heard Dr. Dixson calling him by a wrong name on his arrival. His pulse was imperceptible at the wrist; he was drowsy, livid, and covered with a cold perspiration. There was no diarrhœa, nor did he complain of any pain. The patient was decidedly delirious, but could be induced to give some kind of answer to a question. After persevering in the use of strong stimulants, coffee, ammonia, &c., with warmth to the extremities, the patient recovered in about 1½ h. (*Lond. Med. Record*, March 15th, 1886.)

6. Bryony, which grows abundantly in the hedges of our eastern departments, is known to the peasants by the name of the "devil's plant." In spite of this terrible surname, many of them gather the root, which they carefully preserve after having dried it in the oven, and which they give empirically in the treatment of hernia. This is not the place to investigate as to whether this popular belief is sensible or absurd. But I shall always recollect that I had the opportunity of seeing, in 1847, in a village of the Côte-d'Or, an unfortunate woman, 50 years of age, who, to cure herself of a hernia to all appearances incurable, swallowed every day, for the space of four months, from 10 to 12 gr. of bryony. Of all the disorders evidently produced by this long intoxication, that which struck me most was the existence of a pseudo-membranous catarrh, which became chronic. "There is some skin in my expectoration," said the woman to me, "I spit it out every morning, sometimes in long strips, and it comes off even from my palate and my throat." This I ascertained to be the case. (Teste, *Journ. de la Soc. Gall.*, i, 205.)

7. Sept. 20th, 1867, at 8 a.m., I was hastily summoned to visit a little girl, æt. 3, who had eaten freely of the berries of the B. dioica. I attended immediately, only to find the child *in articulo mortis*. From the parents I learned that about ½ h. after eating the berries the child became giddy, and during n. furious delirium supervened; pupils became dilated; vomiting incessant, but not accompanied with diarrhœa. Nothing was done but to give a dose of castor oil. As m. approached delirium ceased, and the little patient became comatose, with occasional subsultus tendinum. Parents then became alarmed, and I was called in only in time to see closing scene. No *post-mortem* was made. (Goate, *Lancet*, 1868, i, 610.)

* Dr. Imbert-Gourbeyre, to whom we are indebted for Nos. 2, 3, and 4 of B. poisonings, mentions an occasion, recorded by Neumann in his *Chemia Medica*, on which B. root, used freely by mistake for another medicine, caused "very serious and dangerous symptoms, as convulsive movements, loss of consciousness, comatose conditions, delirium, swelling of head and eyes."—Eds.

III. *Experiments on animals.*—1. *a.* At a meeting of the Société Médicale Hom. de France, Dr. EUGÈNE CURIE presented the tongue, trachea, and lungs of a rabbit to which he had administered B. for 8 months, at first 2 dr. of tinct. *per diem*, gradually advancing to 250 dr. "You can see," he said, "that there is formed a pseudo-membranous firm tube which lines the trachea, and on the one hand penetrates the 2nd and 3rd ramifications of the bronchiæ, on the other lines the whole of the larynx. Some false membranes existed also in the mouth, at the base of the tongue; but these not being so strongly organised have disappeared in the alcohol; one can, however, ascertain the red spot (*pointillé*) which formed this point of attachment. It cannot be supposed that we have to do here with a mechanical action; the penetration of an irritant liquid into the bronchiæ could not induce such an effect without also producing a deep disorganisation of the tissues; besides, the effect commenced with the mouth. I add, that I am able to affirm that no liquid did penetrate the bronchiæ, which could easily be proved, because of the cough which results from the introduction of the smallest quantity of alcohol; I except, however, the last 3 d., during which the animal had some difficulty in swallowing, but he also suffered from suffocation. With this exception, there was no perceptible phenomenon to note during the whole course of experiment, not even any distress in the respiration. This I explain as follows:—The false membrane grew little by little and permitted the trachea to enlarge for the passage of air, which I was able to ascertain by autopsy. The trachea had acquired an abnormal size, which can no longer be seen because of the shrinking produced by immersion in the alcohol. The rabbit died in full vigour and quite fat, so that I am quite sure it was a mere accident, the membranous tube having detached itself at the level of the larynx by an effort, perhaps the shock of a cough brought on by the introduction of a drop of liquid. At any rate, I found the extremity of the tube free, and it is probable that, being no longer kept open by adhering to the parietes of the trachea, it had acted the part of a valve, and no longer allowed the air to pass; but for this I think I should have obtained lesions still more extensive. Those which I have to report are: 1st, slight congestion (from asphyxia) of the lungs, which are otherwise sound. 2nd, almost complete emptiness of the intestines, rare in the rabbit, but which is easily explained, because he could not swallow for the last three days. 3rd, absence of inflammation in the alimentary canal and also of false membrane throughout its length, excepting the stomach, where it may be questioned whether it was not due to local mechanical action. 4th, the intestines contain a serous yellow liquid. I should state that there was no evacuation before the last days. 5th, the heart full of black clots not at all decolorised. 6th, no visible alteration in the heart. Several of you seem astonished at not seeing more marked lesions in the lungs and intestines. That may have been owing to the mode of administering the substance. Thus, I gave tinct. of B. to two young rabbits, nearly of the same age, at the beginning of the experiment. 10 dr. per d. caused their death in 4 d., a fact to be noticed in proof of the tolerance one may obtain, since in the other case, by proceeding gradually, I was able to raise the

dose to 250 dr. Now, in these two rabbits the following lesions were observed :—1. None in the trachea. 2. The lungs on the contrary were tinged in places with a lively red, quite distinct from the violet tinge of asphyxia. Nevertheless, the tissue was not sufficiently affected to have led to hepatisation ; but there was evidently in those cases a tendency to pathogenetic localisation on the lungs. 3. The heart was full of coagulated blood, and three fourths of the clots were destitute of colour ; they must therefore have been formed during life, and were undoubtedly the cause of death." (*Bull. de la Soc. Méd. Hom. de France*, i, 72.)

2. LOEWY made experiments, 6 in number, upon rabbits and dogs.

a. On May 9th, at 8 a.m., 60 dr. of tinct. were administered to a rabbit 8 months old. It immediately afterwards shook its head violently, hiccupped, and much tough saliva flowed from its mouth. An h. later it squatted with bowed back in a corner of its hutch. Its sides began to swell up; breathing and pulse were quickened. In this position the creature remained nearly 3 h., during which time the whole body frequently trembled. It could only be driven from its place with difficulty. When moving it dragged itself along; eyes were sunken; motions increased, black and watery; no appetite. At 4 p.m. the creature seemed more lively, ran about in its hutch, and drank often. 10th, forenoon, except weakness and increased action of the bowels, there was nothing abnormal to be observed about the animal. It then took 80 dr. of tinct. Similar phenomena to yesterday, only the stools more frequent and fluid. After several h. the animal crawled about the room, drank very often, and ate its food greedily, namely, apple-parings and oats. 11th, m., 100 dr. of freshly expressed juice of B. dioica. The creature became immediately restless and fidgety. ½ h. later it seemed weak. It laid itself first on one side, then on other, and foamed at mouth. Sides became excessively blown out. Thick fluid motions were frequently passed, and then swelling of sides subsided, but these were soon blown out again. 2 h. after taking drug it began to tremble all over body, drew hind legs, as if cramped, up to body, and remained in this position nearly 3 h., during which time strokes of heart and pulse became very frequent, breathing quick and laboured. Toward e., when animal was disturbed, it limped about on legs and drew r. hind foot up to body, but soon tumbled over as if dying, with rattle in throat, and so remained in its house the whole n. On 12th, at 8 a.m., it lay on its legs, breathing extremely fast, eyes closed, heat of skin increased, pulse and heart greatly accelerated. At 1 p.m. it died with violent convulsions.

Sectio cadaveris.—Skin was very easily removed from body; superficial veins, particularly those about back, engorged with blood, descending vena cava distended partly with coagulated, partly with fluid blood; vessels of mesentery and those of respiratory mucous membrane extremely injected; liver full of blood, of dark-brown colour, and very friable; stomach distended, and its mucous membrane easily peeled off in some places; much serum in cavity of chest. Pleura toward spine a pale red throughout; under halves of both lobes of lungs coloured like dark red meat, not crepitant, sinking quickly in water; apices of

both lungs float, and yield, when pressed, a foamy, reddish liquid. L. side of heart empty, r. full of coagulum; fold of peritoneum covering omentum traversed by fine network of vessels; diploë of the skull reddened; arachnoid traversed by delicate vessels.

b. On June 28th, at 9 a.m., 80 dr. of freshly expressed juice of B. alba were given to a rabbit 6 months old. ½ h. afterwards animal became restless and leaped about; it then vomited greater part of swallowed drug. 2 h. later it passed a quantity of fluid dung, and became so weak that it could hardly stand upon its feet. Breathing very rapid, mouth open, and tongue lolled out. 3 h. later still it lay upon its feet, breathing very fast, and yellow foam flowing persistently from mouth. Sides swelled up; heart's action quickened. At 5 p.m. in same condition. 29th, 9 a.m., animal has ceased foaming; it lies with head upon forefeet, often opens mouth; breathing and pulse quickened; sides somewhat fallen in, stools diminished; no appetite. 3 p.m., the creature gets up frequently and runs about in its house, at same time it sways about and shows how altogether weak it is. It does not vomit any more, and begins to munch some apple-parings. Breathing is still quick, but much less so than yesterday; thirst moderate; sides fallen in. Heart and pulse quickened. Looseness is stopped, but motions still semifluid. 30th, 9 a.m., except a little weakness, there was nothing abnormal to be observed about the animal. It now swallowed 100 dr. of juice. Immediately after deglutition it began to choke, and vomited with the most violent exertions greater part of drug. It trembled all over, breathed very fast; both sides became distended; heart's action was greatly quickened; pulse hardly perceptible in temporal arteries; eyes wide open, pupils dilated. At 4 p.m. animal lay motionless, breathing fast. It could not be driven from where it lay. Sides were perfectly tympanitic. No action of bowels. In this condition it lay till 9.30 p.m., when it died apparently suffocated.

Post-mortem, 20 h. after death.—Superficial veins about chest greatly injected; muscles coloured red; oral mucous membrane reddened and dotted with discrete ulcers; gullet slightly inflamed; stomach pale outside, mucous membrane reddened and wrinkled, easily peeled off; intestines distended, containing yellow fluid ingesta; mucous membrane reddened, and here and there marked with black spots; kidneys healthy; omentum throughout traversed by fine vessels full of blood; liver reddish brown, friable; bladder empty. Lungs externally brownish red, with separate blackish-red spots, which extend into parenchyma; the portions of lung in which the spots are found sink quickly in water. R. chambers of heart full of black fluid blood, l. containing about half a teaspoonful of fluid blood; mucous membrane of trachea traversed here and there with red vessels; arachnoid in some places reddened. In some portions of spinal cord, especially in lumbar region, there were single reddish spots perceptible.

c. On July 3rd, 140 dr. of fresh expressed juice with ½ oz. of water were administered to a black, moderately large, rabbit 5 months old. The animal at once moaned dolefully. At 10 o'clock it threw up food mixed with fluid; there was no appetite throughout. It appeared much prostrated. Heart's action quickened. Only when forcibly driven

would it move from one place to another. At 9 o'clock it lay very weary; had several motions; breathing was very quick; heart's action frequent and jerking; sides swelled out; extremities drawn up to body. When anyone tried to make it move it fell over on one side. 4th, 10 a.m., it lay on one side, was remarkably faint, and could not move at all. Pulsations of the heart were scarcely perceptible; sides swelled out, but flaccid to touch. Extremities drawn up to body, but could easily be drawn away from it. Breathing greatly quickened and rattling. Death at 12 o'clock.

Autopsy at 5 p.m.—On inner surface of skin corresponding to chest, arborescent vascular injection. Terminations of great venous trunks form numerous anastomoses. Vessels of cerebral membranes distended with blood; brain healthy; tongue on its dorsal surface spotted with red and yellow; mucous membrane and these spots with it easily peeled off; mucous membrane of œsophagus of reddish colour; lungs of reddish brown, and studded with dark spots, which penetrate into substance, and are darker when cut into. Lungs crepitate little when incised and pour out considerable quantity of dark fluid. Several portions sink in water. Chambers of heart and great vessels contain considerable quantity of thick, fluid, blackish blood. Liver red and full of blood, but externally only slightly reddened. Mucous membrane of intestines inflamed and studded with little ulcers.

d. May 24th, 9 a.m. To a strong, tolerably large dog was administered ½ an oz. of juice with a little water. Half an h. afterwards he was taken with severe retching and restlessness. An h. later retching became much more violent and accompanied by whining. The animal breathed very fast; pupils dilated; he moved about freely with head resting upon chest. Two h. later began to vomit very violently, and brought up his food taken the d. before. So long as there was food in stomach he seemed to vomit more easily, but when it was emptied he suffered very severely, and whined when each attack of retching began; but in spite of all his endeavours was able to bring up nothing but greenish mucus, which was followed later by entire flocks of mucous membrane. His walk began to be unsteady. At 6 p.m. he lay as if stupefied, and could only with difficulty be driven away from his bed. He left all food laid before him untouched, but seemed all the more to desire water, which he drank greedily, but only a little at a time. Both sides were fallen in and painful to touch. Pulse and cardiac action, like breathing, greatly quickened. 25th, 9 a.m., the animal lies exhausted and mournful. Diarrhœa; motions at first pasty, afterwards watery, brownish yellow; pupils dilated. Flanks fallen in; breathing much quickened; pulse and heart very fast; no appetite; great thirst. 4 p.m., no remarkable change. The animal lies constantly weak and faint, but seems to have more appetite than it had yesterday. 26th, 10 a.m., former appearances in less degree. Appetite increased; thirst moderate; walk more easy; breathing still quick, rattling, as if there were mucus in trachea; heart and pulse quickened. 1½ *oz. of fresh juice.*—Mouth was immediately filled with foam, and the animal howled with pain. Half an h. later he vomited, with most violent retching, food mixed with fluid. Retching lasted whole d., and masses of flocculent mucus

and membranous coagula were thrown up. Pulse and heart began to be greatly quickened. The creature was very mournful, showed no appetite, but much thirst, though unable to swallow water. 4 p.m., he lay on one side, was particularly weak, and when forcibly driven could only keep his feet with the greatest difficulty. Heart and pulse very fast and jerking; breathing quick. Motions very frequent, of greenish colour and fluid consistence. 27th, m., same appearances as yesterday, only in higher degree. 28th, 11 a.m., the animal breathes very fast, and lies as if lifeless on his side; lets himself be moved in various positions without resistance. Heart's action and pulse scarcely perceptible. He died without any signs of convulsions at 1 p.m.

Post-mortem, 20 h. after death.—Lungs show upon their surface cherry-red spots, which penetrate into their substance. When cut into, they give out a crepitant sound, while semifluid black blood runs out. Portions of lung sink in water. Stomach is distended, externally pale red, internally mucous membrane dull red, occasionally studded with small ulcers. Liver dark brown, firm; gall-bladder collapsed. Duodenum internally inflamed, its mucous membrane of chestnut-brown colour. The other intestines studded in some places with red points. Vessels of the otherwise healthy brain full of blood.

e. On June 17th 100 dr. of tinct. were administered to a young dog, the medicine having been mixed with ½ lb. of water. Half an h. later he spat and vomited. Foam hung out of his mouth. A few hours after taking drug he lay still, showed no appetite, but excessive thirst. Towards e. he seemed quite lively and ate some meat and bread. On 18th dog was quite lively, and hence was dosed with 150 dr. Immediately after taking them followed vomiting, whining, restlessness, frequent choking, and much saliva flowed from mouth. Belly fell in remarkably. He let his tail, which he had always been accustomed to carry in the air, fall between his legs; lay down often, breathed fast, and very often hawked up foaming saliva. Towards noon purging of blackish fluid set in. He ate some soup made with bread with little appetite, and lay looking very miserable. The thirst increased. In afternoon he vomited again, and retching kept up very frequently, which seemed to give him great pain. Towards e. he appeared more lively, and again showed appetite. In n. he was very restless, and howled a good deal. Next m. he lay on his forefeet, barked with difficulty and hoarsely, and seemed very weak and miserable. Diarrhœa continued, appetite and thirst increased. In afternoon no remarkable symptoms. 20th.—The dog is again much more cheerful. Diarrhœa is lessened, appetite nearly normal; thirst moderate. He carries his tail again as he used to. 21st, m., the animal seems quite well again, and gets, therefore, a further dose of 200 dr. Directly afterwards, violent vomiting. Mucus flows very fast out of mouth. Constant choking, distortion of eyes, anxious jumping about. 2 h. later, black-brown fluid flows from anus, seeming to give him pain. Sides are remarkably swelled out. Heart and pulse cannot be felt, as he threatens to bite. In afternoon he breathes very fast, lies exhausted; shows great thirst, but no appetite. 22nd, m., the animal lies on one side, breathes very fast; heart's action very

quick; pulse hardly perceptible. In this condition he remained till the 23rd, when at 5 a.m. he died with convulsions.

Post-mortem, 24 h. after death.—Lungs collapsed, somewhat œdematous, foamy blood in lower lobes; bronchial mucous membrane pale, a little injected in a few places. R. side of the heart filled with a good deal of semifluid blood; l. side contained a little similar blood; œsophagus somewhat distended, its mucous membrane pale reddish; mucous membrane of the stomach reddened extensively in several places; spleen almost healthy, only coloured dark blue at edges; omentum injected a pale red; in intestines, yellow-coloured chyme, intestinal mucous membrane marked in several places with inflammatory redness. Substance of the kidneys dense, firm, dark brown; bladder red externally, empty; inner surface of the skull greatly injected; cerebral membranes distended with blood even to finest ramifications of vessels. Substance of brain a little softened, with a few red points; under surface of brain strongly reddened.

f. A rather large and strong dog, that, with similar symptoms to the foregoing, fell within a few d. a victim to B. was on June 26th the same year, 18 h. after death, opened by one of our most experienced anatomists, Dr. and Professor K—. The anatomical and pathological results are as follows:—Veins of skin were much injected, especially those about chest; muscles of the chest as well as serous membranes lining it were reddened; several ounces of a reddish fluid were effused into cavity of chest. Subcutaneous veins of neck, even to finest vascular branches, were very much injected and distended with deep black blood; outer and inner muscles of neck were strongly reddened throughout. Trachea and larynx contained a frothy, yellowish-white fluid; mucous membrane, especially that of larynx, was throughout traversed by a fine network of vessels, which it was difficult to separate from the cartilage. Lungs were externally spotted a dark brown, slightly crepitant, and when cut into poured out a large quantity of dark frothy fluid. At same time separate portions floated in water. Heart was firm in its substance, very red; pericardium injected; auricles distended; r. ventricle full of dull, reddish, blackish coagulum; contained a considerable quantity of semifluid blood. Stomach was greatly distended, externally penetrated by streaks of blood, and contained remains of the lately swallowed juice. Mucous membrane easily peeled off, and particularly reddened at folds, in several places apparently infiltrated with blood. Mucous membrane of duodenum healthy, that of small intestine beyond contained some greasy, yellowish liquid, which smelt of B. Its mucous membrane was studded with spots of congestion. Colon contained a similar liquid; its mucous membrane exhibited likewise fine red spots. Veins of peritoneum covering intestines as well as those of mesentery were much congested throughout in an arborescent manner. Liver was large, dark brown, friable, congested; gall-bladder was full of greenish-black liquid; spleen anæmic, small and flaccid. Kidneys, particularly l., congested, with very fine vascular reticulations, visible on outer surface; cortical substance a brownish black. When cut into, it yielded some rather thin, very fluid blood upon cut surface. Bladder was quite empty, its mucous membrane

beset with spots of the colour of muscle. Dura mater throughout, especially above base of skull, congested, hard to be separated from bone; pia mater congested in an arborescent form; brain substance healthy; ventricles empty. (*Oest. Zeitschr.*, iii, 95.)

3. Dr. MAYRHOFER, of Kremsmünster, proved B. on 3 oxen. He chose oxen for this experiment because B. (under the name of Haningwurzel) is commonly used by the country people and farmers of the circle of Traun, for the so-called "Haningkrankheit" or sclerodermic disease of horned cattle. The opportunity presented itself on the property of his brother, where there is a large farm, and where homœopathic treatment has for several years been employed with the greatest success in diseases of horned cattle. The provings were made with the tincture of B. dioica. The following results are recorded:

a. "For the first experiment a young, thoroughly healthy bull was selected. He was of a greyish-black colour, and 13 months old. I examined, first of all, the state of the skin, which was quite soft and lissom, and easily drawn into folds, which, when let go, immediately smoothed down. His hair was smooth and lay flat. The animal got from May 20th to 26th daily 2 large teaspoonfuls of freshly prepared tinct. with his drink, which he took thus without hesitation. On the 3rd d., that is, after 6 teaspoonfuls of the drug, I was informed that the beast was sick. I started at once to inspect my taurine fellow-prover. The bull looked extremely miserable; his coat was rough, erect, bristly; skin had lost its mobility, and when pinched up into a fold (over shoulders and ribs) a crackling and creaking sound was clearly heard, and folds of skin which had been pinched together remained for some time in that state before they went down. Appetite was little altered, and dung had become somewhat drier. The B. was continued 3 d. longer, when, as all the symptoms heightened, and the bull became visibly thinner, the dairymaid refused to give him any more Haningwurzel. 8 d. later, during which the maid had mixed some must with his drink, he was as well as before the proving.

b. "A fawn-coloured two-year old heifer, which had gone through a mild attack of Haningkrankheit a short time before, as was apparent from the dry skin, got daily from March 23rd to 26th a teaspoonful and a half of tinct. with her drink. Even after second dose skin became creaky so that it must have hurt the beast to pinch it into folds, for whenever this was done she butted with her head and struck with her hind hoof at the hand of the experimenter. On 3rd d. skin was less hard and painful, and although the creature got daily the same dose of B. in her drink (8 doses altogether), the complaint steadily declined after the primary exacerbation, and a few d. after the B. had been given up the skin was healthily smooth and mobile.

c. "A three-year old, perfectly healthy cow, a few weeks after her first calf, was submitted to a proving of B. She got from 1st to 10th June 10 doses of the drug, each time 2 large teaspoonfuls. The first 5 doses had no visible effect. On 6th d. skin became dry and adherent. On 8th hair bristly and knotty; and on 10th, the milk (daily 5 quarts) had diminished one half, and as the cow was becoming emaciated the proving was stopped. Not till after 3 weeks did the cow regain her

healthy look, and the milk was lessened in quantity a still longer time." (*Ibid.*)

4. The root of B. owes its power to an extractive matter which was discovered in it by Brandes and Firnhaber, and which they have named bryonine. According to the experiments of Collard de Martigny, bryonine inflames the stomach (when swallowed) or a wound to which it is applied exactly as the root itself, and is considerably more energetic. When introduced into the cavity of the pleura it causes rapid death by true pleurisy, ending in the effusion of fibrin. (CHRISTISON, p. 545.)

CACTUS.

Cactus grandiflorus, L. Night-blooming cereus. Nat. ord., *Cactaceæ.*

I. *Provings.*—1. Dr. RUBINI and his wife proved C. in 1862, manner not stated, but medicine taken for 8 d. [Their symptoms are blended together in a schema, and can only be rearranged according to the notes of time.—EDS.]

a. On 1st d., such violent pulsations in temples it seems as though skull would burst; momentary dazzling of sight; noises in ears like rushing of a river, lasting all n., with diminished hearing; great thirst, causing him to drink much water; great but ineffectual desire to pass water for a long time, at last it flows abundantly (of a straw colour); slight fever with pain in head, coming on after a very short rigor at 2 p.m., ending in slight sweat at 4; in e. rigor of 3 h. duration, so severe as to make teeth shatter, it does not go off although he lies down and covers himself with blankets, followed by burning heat with great pain in head and such dyspnœa and restlessness that he cannot remain in bed, lasting 20 h., and ending in copious sweat; sleepless at n., without apparent cause, with dry cough from tickling in larynx; involuntary escape of urine in bed, at 5 a.m., while asleep. On 2nd d., feeling of emptiness in head; pulsating pain again in temples, getting intolerable at n., throbbing then also in scrob. cordis and r. ear, preventing sleep; heavy, dull pains in region of heart, increased on pressure; want of appetite and loss of taste of food, which goes off after some h. On 3rd d., pulsation in both ears, hindering sleep; continued taciturnity, he will not answer though repeatedly spoken to; sensation in chest as if someone were pressing and holding it tightly, so that he cried out, "Leave me alone;" oppression of breathing as from a great weight on chest; sanguineous congestion in chest, which prevents him lying down in bed; fœtid breath in m.; complete loss of appetite, cannot take least morsel of food; insupportable heat in abdomen, as though something burnt him internally, abdominal parietes when touched much hotter than other parts of body; menstruation 8 d. too soon in a woman in whom it was usually 7 d. too late. On 4th d., very great and intolerable pain in head, with congestion, most severe on r. side; acute pain in heart, impeding respiration and movement; oppression in l. subclavian region,

as if a great weight prevented free dilatation of thorax; acrid acid in stomach, which comes up into throat and mouth, and makes everything he eats taste sour; sense of great constriction in chest, also in scrobiculus cordis, extending to hypochondria, and impeding respiration; oppression and weight in stomach; distressing sensation in bowels as if serpent were twisting about; urine passed by drops with much heat. Throughout these 4 d. also, violent pain in r. half of head, increased by sound of talking, and by strong light; weakness of sight, objects appearing as if clouded; pulsation in ears, constant d. and n.; unusual melancholy, for which he cannot account, on 4th d. becoming profound hypochondriasis, he is unwilling to speak a word; oppression of chest with loss of breath; palpitation, constant d. and n., worse when walking, and at n. when lying on l. side, much augmented on 3rd d. on occurrence of catamenia; sense of great burning in stomach; frequent desire at n. to micturate, with copious flow each time; urine more copious than usual.

b. On 5th d., r. hemicrania continues, also burning in stomach; sense of great constriction in shoulders so that he could not move; wandering pains in umbilical region, ceasing and recurring periodically; heat in urethra, which increases gradually and becomes insupportable; most horrible pains with menstruation causing her to cry out and weep. On 6th d., continuance (as on 5th) of hypochondriasis and irresistible sadness, taciturnity, and inclination to weep; also of pulsation in ears, palpitation, and nocturnal diuresis; dazzling of vision, then appear before eyes circles of red light which obscure sight; sense of painful constriction in lower chest, as if cord were tightly tied round false ribs, with obstruction of breathing; constriction of œsophagus, preventing swallowing; he must drink a large quantity of water to get it down into stomach. On 7th d., slight delirium at n., ceasing on rousing up, but recurring as soon as he falls asleep again; fear of death, extreme and lasting, he believes he is incurring an incurable malady; nausea in m. and all d. long; very violent pains in bowels almost causing him to faint, lasting more or less all d. On 8th d., constriction of throat, causing him to swallow saliva frequently. Up to this time, from beginning of experiments, provers had been suffering from (besides the above named) constant and tiresome pulsation in temples and ears, giving much annoyance and causing hypochondriasis; inability to sleep in early part of n., and when he fell asleep he woke suddenly; constriction in chest, especially under sternum, as if a hoop of iron constricted it; sharp wandering pains in thoracic cavity, very annoying, especially in scapular region; pain in l. mamma, increased by touching, relieved by gently raising it; annoying sense of movement (as of a reptile) from before backwards in cardiac region, worse by d. than by n.; sense of constriction in heart, as if an iron hand prevented its ordinary movements; most acute pain and such painful stitches as to cause him to weep and cry out loudly, with prolonged oppression of breathing and much anxietas; periodical attacks of suffocation with faintness, cold sweat on face and loss of pulse; anxietas, recurring in e.; strong pulsation in scrobiculus cordis; sense of great weight on stomach, recurring every time medicine was taken; loss of appetite and nausea, it is only by an

effort that he can swallow a few morsels; in one prover constipation for 6 d., in the other bilious diarrhœa with 4 or 5 evacuations daily (on 3rd and 7th d. 8), mostly in m., always preceded by pain; dry cough from pricking in throat. Face was discoloured and emaciated.

c. For 2 d. more sense of movement in and constriction of heart; for 4 d. pain in l. mamma; for 6 d. nausea and anorexia; for 7 d. constriction in upper, for 10 d. in middle of, chest; for 7 d. also thoracic wandering pains, e. anxietas, dry cough, and weight in stomach. On 9th d., love of solitude, he avoids those about him who try to comfort him; watery diarrhœa, very abundant each time, 10 motions in m., always preceded by pains and borborygmus. On 10th d., talking nonsense while asleep at n., and even when aroused speaking unconnectedly; feeling of constriction in throat which prevents free speech; on forcing himself to speak voice is low and hoarse; constriction in neck of bladder, preventing passage of urine till after much straining. After 10 d., vertigo from sanguineous congestion to head. On 12th d., face inflamed and red, with pulsating pains in head; mucous diarrhœa preceded by drawing pains, 3 motions in d. After 13 d., quotidian intermittent fever, recurring every d. at same h. for many successive d.; at 1 p.m. slight rigor, then burning heat, dyspnœa, and great pulsating pains in uterine region, terminating in slight sweat, till noon next d. complete apyrexia. (During 20 d. since commencing proving, tensive pain on vertex which returns every 2 d.) On 15th d., extraordinary irritability, the smallest contrariety puts him into a passion; sensation of great weight in anus and desire to evacuate, but nothing passes; pulsating pain in hypogastrium (female), recurring every e., extending to thighs, increasing up to 11 p.m. On 20th d., interrupted sleep at n., next m. he feels weary as if he had not slept at all; great appetite, but weak and slow digestion; great itching in ankles, which next d. extends to lower part of tibia. On 24th d., a dry scaly patch, 2 in. broad, appears on l. internal malleolus, and on 38th d. came on r., while on 30th and 48th d. respectively similar patches appeared on r. and l. elbow (outer side). (*Patogenia di Cactus grandiflorus*, 1864.) [See APPENDIX.]

2. *a.* Oct. 15th, 10 p.m., took 10 dr., 1st dil.—17th. On rising m. after quiet sleep, great weariness, weight of limbs, and unusual sleepiness, lasting 2 h.—18th, 19th, 20th, 21st. Every e. very tiresome fleabite-like itching on chest and abdomen, making him rub; is allayed after going to bed; not felt during d.—22nd, 10 p.m., 15 dr. The itching occurred during d., and not in e.—23rd and 24th. A peculiar sensation at anus, as if rectum were swollen, which causes scraping and prickling sensation during stool. Slight oppression of breathing during d. when walking.—25th and 26th. A pressive pain in chest causing tight breath and compelling deep breathing, worse when walking and when going upstairs; troublesome owing to palpitation of heart.—27th, 28th, and 29th. The symptoms gradually went off.

b. Nov. 12th, 11 p.m., 10 dr. of 3rd dil.—13th, 8 a.m. When sitting quietly, pressive pain in upper part of l. chest, behind 2nd and 3rd ribs; tightness of breathing making him take long breaths, lasting some m.

Soon afterwards tiresome pressure in r. parietal bone. On undressing, e., itching on abdomen and calves.—14th, 15th. Several times during d., when walking, cramp pain in r. sole, transient but very tiresome.

c. Nov. 19th, 11 p.m., 10 dr. of 6th dil. Soon scraping in soft palate, lasting 1 h. In forenoon, pressive pain in l. parietal bone rather external; tearing in l. shoulder-joint.—20th. On waking in m., and lasting forenoon, a drawing-tearing pain in r. arm, which, after rising, went into r. wrist.

d. Nov. 26th, 11 p.m., 5 dr. of tinct. For 1 h. afterwards scraping in palate. At n. in bed strong heart's beats and pulsation in upper part of chest. The pulse in the arm beat hard and quick to the fingers. The heart's beats and pulsation in chest were stronger, more audible and perceptible, when lying on back than when lying on side; at same time anxiety and restlessness. After 1 h. these symptoms subsided and he fell asleep.—27th, 8 a.m., 5 dr. Scraping in palate, pressive pain in upper part of r. chest, oppressed breathing, increased strength of heart's beats, and, when walking, pulsation in chest, and anxiety, lasting all forenoon; also pressure in l. parietal bone. Woke in m. with violent pain in r. knee, extending from patella to outer side of leg; the slightest movement increased the pain; subsided after 1 h. Soon afterwards numbness of l. arm and tiresome prickling in little finger for a short time. Lecherous dreams and erections in sleep.—28th. On rising, m., pressive pain in l. parietal bone. During d. occasional pain in muscles of upper arm, thorax, calves, and soles.—29th. Last n. the first half sleepless on account of afflux of many thoughts; later uneasy sleep. In m., even before rising, intolerable pain in lower part of dorsal muscles on r. side, extending to glutæi all d.—Dec. 1st. Transient tearing pains in joints, sometimes shoulder, sometimes elbows, sometimes in fingers, chiefly on r. side. Dyspnœa when walking, especially going upstairs, when there is also palpitation.—2nd, 3rd. Painful weariness and heaviness of arms, and generally discomfort; drowsiness as after a severe illness. Restless sleep. On both d. empty feeling in stomach, with unaltered appetite and normal stools. All the functions remained undisturbed during proving, except that the urinary secretion seemed rather scantier. (HENCKE, *A. h. Z.*, lxxxvi, 173.)

3. Nov. 1st, 6.30 a.m., 5 dr. tincture. All d. pressure in forehead now and then, more frequently in room than in open air; tearing through l. arm.—2nd, 9 a.m., 10 dr.—4th, 9 a.m., 15 dr. Yesterday and to-day some pains in joints of no peculiar character and not unusual; jerking-tearing in forehead and limbs.—5th, 9 a.m., 15 dr. Palpitation of heart when standing and sitting; anxious sensation in heart; short breathing; little pain in limbs.—6th. Same heart symptoms.—7th, 6.30 a.m., 15 dr. Same symptoms as on 8th and 9th.—10th, 6.30 a.m., 20 dr. Seems to have for some d. past a marked restlessness and hurry in what he does; seems always to come too late, never at right time, and the day seems not long enough for his work; at same time uneasiness and oppressed feeling in heart.—11th, 6.30 a.m., 20 dr. Same symptoms; the palpitation and oppressed feeling in heart felt also when sitting and lying in bed at n.—12th. Same state. The palpitation consists of small irregular beats, with need to breathe

deeply; this state is excited by any little emotion or active thought. Breathing the open air is very beneficial. Towards e. some violent, but transient, pains in limbs.—13th. Same symptoms. The palpitation worse when lying on back.—14th, 9 a.m., 20 dr. When moving rapidly there occur quick, short, irregular heart's beats; some severe stitches in upper part of r. side of chest.—15th, 7 a.m., 20 dr. Quick walking does not bring on the palpitation, but sudden movement, stooping, rising quickly from chair, and emotions do.—16th. When moving in bed, m., small, quick, irregular heart's beats; this also occurs during d. at beginning of any movement, as stooping, rising, turning round, but not in walking. At same time an anxious feeling in chest rising up to throat.—17th. Same symptoms, but milder.—18th. Symptoms subsiding.—19th, 4 p.m., 30 dr. At 5 p.m. some pains in knees and forehead; need to breathe deeply, with some irregular heart's beats, which occur under the same conditions as before, with feeling of pressure and weight in cardiac region. At 5.30 p.m. coldness in back, and icy cold hands for ½ h., though face and head were hot. The pains in various joints, forehead and head return. In e. constant pressive pain in l. side of forehead, lasting till he went to sleep, and felt on waking twice in n.—20th, 6.30 a.m., 30 dr. Irregular heart's beats on moving suddenly, all d.; slight pains in limbs and head only in m. On waking at n. and changing posture the same heart symptoms.—21st. Same heart symptoms, and also many strong beats on walking quickly in room, with oppressed breathing and deep inspirations.—22nd. At 5 a.m. same heart symptoms when lying on back after moving; also after rising, when walking quickly in room. The heart symptoms occurred frequently to-day; on commencing to walk are sometimes so severe he must stand still and breathe deeply several times; the same when going slowly upstairs, and even going downstairs. On waking in m. and changing posture the same heart symptoms.—23rd. Same symptoms under same conditions. During d. heart symptoms slighter.—24th. No more heart symptoms, but drawing in fingers, toes, knees and ankles. Later the heart symptoms recurred, and sometimes very severely, so that he must stand still and breathe deeply, whereby the heart-symptoms were relieved; in e. any sudden movement while seated sufficed to bring on strong beating of heart.—25th. Heart symptoms on rising and all d.—26th, 27th, 28th, and 29th. Same symptoms. (LEMBKE, *N. Z. f. h. Kl.*, xii, 2.)

4. *a.* In Aug., 1877, I strongly inhaled a recently prepared tinct. (I am very sensitive to medicine). Immediately thereafter, I drove to see patients. On leaving house of first, I found difficulty in crossing side-walk to carriage. In 10 m. more vertigo had increased, there was constriction about chest and stomach, pain in heart and head. Getting in and out becoming increasingly difficult, and nausea threatening emesis, I drove home. Vertigo was now great, causing me to reel and stagger, and I threw myself on a sofa. I had violent pain in head, chest, and stomach. Head full as if congested; great weight on vertex, pulsation and pressure outwards in temples, ears, and eyes. Objects not clearly seen; intolerance of light and sound. Tongue dry and coated; mucus in nares and throat; very thirsty, satisfied

with small quantity at a time; profound nausea, lay for hours with basin beside me, retching many times, with copious discharge of mucus. Terrible pain in stomach, with pressure inwards; constriction of scrobiculus, extending to hypochondria and as high as fifth ribs, as if encircled by hot iron cincture, pressing more and more from h. to h., till respiration was most difficult and distressing. Some cough, with mucous expectoration, greatly aggravated my suffering; and I had attacks almost approaching suffocation, with hard and painful beating of heart, which felt as if compressed violently, and as violently struggled to burst its bands; I could not suppress a groan, so great was my distress. Pulse was very irregular. Severe pain in spine, worse in lumbar region, pressing down glutei muscles to lower extremities; tearing pains in shoulders and arms, worse at first in joints, after 24 h. worse in long bones.

b. Symptoms increased for 12 h. I now remembered inhalation of C., and found its pathogenesis a perfect picture of my case. Ipec., ver. vir. and camph. were taken, but without relief. A most miserable n. was passed, not a symptom disappeared, though nausea and constriction were less distressing, and heart struggled less violently. Tongue next m. coated thickly white; 3 mushy motions during forenoon, with pain. N. found me still in bed, unable to raise head for vertigo; symptoms same. Had a few h. disturbed sleep, scared with dreams; next d. was able to leave bed for a few h. Bone pains continuing severe, took eupat. perf., with relief. The 4th m. found me relieved of all severe suffering; but I was well in no part affected till 10 d. had elapsed, and remained weak for several weeks, with frequent attacks of palpitation. (E. Clark, M.D., *Un. St. Med. Inv.*, April, 1879.)

5. Dr. Burt proved 3x dil. In doses of 100 to 500 dr. it caused some umbilical and hypogastric pains, with constant dull pain in cerebellum, ceasing when drug was omitted, but returning as soon as its use was resumed. He then took 600 dr., and in 4 h. had dull frontal headache, with flushed face and slight pain in bowels; then soft stool, followed by quite severe pain in hypogastrium. (*West. Hom. Obs.*, iii, 239: from Allen.)

6. *a.* Dr. Fitch took during some d. from 7 to 20 dr. doses of tinct. On 1st d. were observed,—impulses to do something facetious or almost grotesque, which could be repelled; slow in making up his mind to action, and deliberate in carrying it out; at times during d. pressure in occiput, not severe, and relieved by quick exercise or mental activity; on retiring, this feeling amounted to heaviness and pain, with sensation as if brain were grown fast to skull, increased by lying on back, instantly relieved by turning on side so that occiput did not touch pillow; after 1 h., for some m. soapy taste; stool was followed by blood (from piles); slight priapism in e.; after retiring, and before going to sleep, drawing pain for 10 or 15 m. in l. axilla and neighbouring front of chest. On 2nd d. woke feeling splendidly; slimy, weedy taste; appetite better than usual; sensation of something disagreeable in stomach; a difficult, hard stool, afterwards fluid blood from anus; muscles do not accurately obey will (as in croquet-playing).

On 3rd d., soreness of abdomen, with distension; motions henceforward loose and mushy, and no bleeding. Without date,—accumulation of mucus in throat (immediately); on retiring, some unsteadiness, almost amounting to staggering, a reeling sensation.

b. Took one dose of 197 dr. Passed immediately about ½ pint of urine, having odour of freshly drawn green tea; during d. felt remorseful as if he had done violence to himself, but nothing of consequence ensued, save some genital congestion and excitement towards e. Appetite was better than usual, and he slept soundly. (*Med. Eclectic*, i, 190: from Allen.)

CADMIUM.

Including *C. bromatum*, bromide of C., $CdBr_2$; *C. sulphuratum*, sulphide of C., CdS; and other preparations.

I. *Provings.*—1. At 10 a.m., being in good health, took gr. ss. It had a peculiar metallic taste. At 11 a.m., frequent flow of saliva into mouth that was constantly spat out, recurring every 2 to 3 m., and retching with much effort bringing up viscid mucus. This continued till 2 p.m., when, with violent pains in stomach and umbilical region and urging to stool, violent vomiting of food, mucus, and bile came on. Then these symptoms declined, leaving him exhausted. Next m. pains in cervical muscles, probably owing to the violent retching. (BURDACH, *Hufeland's Journ.*, xxiv, 1, 130.)

II. *Poisonings.*—1. *a.* A lady put less than a teaspoonful of the bromide into two thirds of a tumbler of water, and divided solution between herself and her mother. Dr. Wheeler found both ladies vomiting severely, and complaining of extreme pain and burning in stomach. Mother was also freely purged, though daughter was not. Vomiting and purging lasted fully 5 h., and during part of this time pulse was imperceptible in either patient. After this period symptoms ameliorated, and both fell asleep. For several d. both were confined to bed, and were obliged to be extremely careful as to diet. Mother has since suffered from cerebral symptoms which betoken tendency to apoplexy.

b. Attending physician took as much of powder as would adhere to his wet finger, and had severe burning in mouth, œsophagus, and stomach, lasting about 1 h. (WHEELER, *Boston Med. and Surg. Journ.*, xcvii, 434.)

2. A grain of bromide of cadmium suffices to bring about evident results. To reduction of pulse are added vomitings, and prostration even to stupor. The nervous system, however, is only indirectly attacked. (BELGRAVE, *Bull. de Thér.*, lxxi, 92.)

III. *Experiments on animals.*—The following are the principal results of Dr. Marmé's researches on the toxic properties of the compounds of cadmium:

a. The sulphuret is not poisonous; the other compounds are.

b. Locally, they act as simple irritants, going as far as ulceration in stomach and bowels, but never causing perforation, even when given as chloride in strong solution.

c. The remote action of these compounds produces symptoms similar to those observed by Loret in men poisoned by the carbonate; these were—vertigo, vomiting, diarrhœa, slowness of circulation and respiration, loss of strength, unconsciousness, cramp. The last symptoms are sometimes followed in animals by death. In sucking animals, birds, and amphibia, the heart's action generally outlasts the respiration, though it may be for a short time only.

d. If quantities sufficiently large to be poisonous without causing death directly be injected into the subcutaneous cellular tissue or the blood-vessels, they excite an inflammatory irritation of the mucous membranes of the stomach and intestines, and frequently even hæmorrhage, erosion, and ulceration.

e. The continued absorption of small doses of the soluble salts of cadmium

causes chronic poisoning, which in animals is characterised by disturbed digestion and emaciation, and ends in death. At the autopsy may be found gastro-enteritis more or less extensive, sometimes subpleural ecchymosis and partial congestion of lungs, and frequently fatty degeneration of liver and cardiac muscular tissue, and diffuse inflammation of kidneys. (RANKING'S *Abstract*, xlvi, 117.)

CALADIUM.

Calàdium seguìnum, Vert. (*Arum seguinum*, L.). Dumb-cane. Nat. Ord., *Araceæ*.

I. *Provings.*—1. *a.* HERING proved single doses of ½ dr. or more of tinct. Soon after ingestion, or during d., appeared following symptoms:—He must lie down and close eyes, feeling then as if being rocked (4 h.); confusion and whirling in head; pressive headache after midday sleep, or after lying on side, going off on sitting up; heat ascends from below into head; biting, burning stitches in cheek; burning in eyes; something seems put before ears which makes him deaf; extremely sensitive to noise, especially when he wishes to sleep; mouth sticky and herby (*kräuterig*); drawing through back teeth, from above downwards; dryness in fauces and pharynx, not in mouth, without thirst, with aversion to cold water (which he was not able to drink throughout proving); longing for beer, without decided thirst; after meals he drank only to relieve a sense of dryness in stomach, there was no real thirst, which, indeed, he never felt; he eats also only because stomach seems hollow (not because hungry), and then hastily and with speedy satiety; frequent eructations of very little wind, as if stomach were full of dry food; incomplete eructations, hindered by burning pressure in abdomen; nausea, with confusion in head; burning in stomach after tea and chocolate drinking, not relieved by water; dull internal burning in stomach and upper abdomen,* which then becomes a very severe pressure, and finally a gnawing at cardiac orifice, hindering deep breathing and causing cough; pain deep within when pressing on epigastrium; cuttings, as with glass, across epigastrium; stitches as with needles deep in epigastrium; stitches in scrobiculus cordis, which is drawn inwards at every one, they make him faint and sick (worse when sitting); strong pulsations in upper abdomen and above navel to r.; abdomen pains when touched, especially in hypogastric region; sudden twisting pain in abdomen (e.); spasmodic cuttings about navel, obliging him to bend double; stitches, jerking, and pressure in splenic region; very scanty pappy stool; 7 motions, the first watery, the rest pappy; no motion 1st d., with diarrhœic feeling in e.; region of bladder painful; bladder feels full without desire to micturate, then moderate urination; spasmodic drawing sideways, from bladder to penis, or deep behind and close to bladder; sexual organs seem larger, as if puffed, relaxed, and sweating; penis remains relaxed during excitement and sexual desire, or undergoes incomplete erection, semen escaping too soon—former alternates one m. with painful erections, without sexual desire; during connection, no orgasm and no emission; sore corrosive pain on prepuce; after coition it remains drawn back, will not cover glans, with pain and swelling; it is swollen, sore on margin, with biting on urinating, obliging him to rub it frequently; glans is very red, covered with fine and still redder points, and very dry (after 2nd d.). The symptoms of prepuce soon disappear after merc. 6, but return after coition for two months.

b. Sudden burning in upper nares, as from pepper, then sneezing and coryza (e.); irritative toneless cough in short slight paroxysms, with expectoration of small lumps of mucus, after which chest seems hollow and empty; larynx and trachea seem constricted, so that deep breathing is hindered, and the attacks of cough seem to originate above larynx; he would cough, but the weight at scrobiculus cordis hinders it; throbbing in præcordia after walking, making him soon tired; stitches on chest (e.), also on small spot between l. nipple and shoulder, going very deep, but uninfluenced by motion or breathing; on straightening body, cracking under last ribs, as if put out of place and snapped back again; under heart peculiar throbbing, not palpitation, perceptible only when hand is applied; bruised feeling in sacrum

* When burning extends into abdomen, it leaves behind a deadened feeling.

and ribs on rising in m.; sudden violent pain in l. knee, as if it would be torn asunder, it cracks on stepping, hindering walking; frequent and sudden violent burning in small spots on skin, cheeks, nose, toes, compelling him to touch them; eruption on inner forearm of large red pimples, itching and burning very much (4 d.); when this disappears, immediately great oppression of chest, so that he can hardly breathe, as if mucus would suffocate him, but without anxietas, especially after meals and the midday sleep; the same eruption on chest, alternating with similar dyspnœa for several weeks,—the "asthma" at last removed by ginger; dislike to movement, wants to lie down whole time; after writing or reflecting, and on rising up after lying, feeling as if he would become faint; drawing pains between bones of forearm and behind tendo Achillis; compelled to lie down during d., but cannot sleep, shivers, and head is very confused; in a confused sleep he remembers what he had forgotten while awake; restless sleep, with confused dreams; very clear vivid dreams; everything troubles him in sleep; he groans and moans with much anguish in sleep, several times in 1 n., and for several n., so that he wakes his neighbours; violent starting in sleep; cramp at n. in soles; before midnight, heat of hands, face, and abdomen, with cold feet; after midnight, belly cold, feet hot, without thirst; thirst, with dry lips, wakes him at n.; internal fever, exhausting sweat, as from oppressive heat; fever goes off during sleep, but perspiration is so great as to attract flies annoyingly; hard, jerking pulse (6 h.); after midday sleep, heat, then sweat, and coldness on going into open air; chilly in e. without thirst, coldness extends from abdomen to feet, which, and the fingers, are icy cold; apprehensiveness before going to sleep; violent irritation at everything. (*Archiv*, xi, 2, 160.)

2. Cowperthwaite. [This physician, having undertaken a proving of the drug for the American Institute of Homœopathy, caused 20 provers to take the 30x dil. Of these only 3 reported symptoms. He next caused 15 provers to take the 6x, and at the same time 15 others to take the 3x: of the former, 9 reported effects, of the latter 7. He then instituted provings with the mother tincture, 20 provers taking doses varying from 10 to 1000 drops, but obtaining no effects whatever, not a single symptom having been reported. Dr. Farrington also administered the drug (manner not stated) to 25 provers, but 6 only (mostly taking the 6x) reported satisfactorily. The result is a schema of 144 symptoms.

In view of the inertness here of even large doses of the mother tincture, as contrasted with the effects ascribed to half-drop doses of it by Hering, and especially with the extreme acridity of the plant as displayed in poisonings by it, we are compelled to doubt the genuineness of the specimen employed in these provings. Dr. Cowperthwaite, indeed, tells us that he obtained expressly for them a supply of the fresh bark and leaves from Jamaica; but the ineffectiveness of what was sent remains. Under this grave suspicion, and in the absence of test experiments to determine whether the symptoms ascribed to the dilutions were really produced by them, we must, for the present at least, refrain from admitting them to our pages.—Eds.] (*Trans. of Amer. Inst. of Hom. for* 1881, p. 146.)

II. *Poisonings.*—1. Dr. E. Chairon was called one night to see a stove-setter. He lay in bed in a state of extreme excitement, breathing oppressed, grasped frequently at his throat. Constant cough of hoarse sound. The cough was not in fits, no expectoration, and was aggravated every time he attempted to speak. On asking him where he suffered he always pointed to his larynx, then to his mouth, and lastly to his stomach. He could not speak a single word. Pulse 72, regular; breathing quick, incompletely jerking. When inspiring the sinking-in of stomach region was very obvious; abdomen hard, distended, painful when pressed. M.m. of mouth very red, but not swollen, velum palati more intensely red, uvula slightly swollen. Epiglottis and its lateral folds swollen and very sensitive to touch. This state lasted 36 h.; then the cough gradually subsided and he could speak a few words, but his voice did not resume its tone for 3 to 4 d., and the feeling of burning in mouth and fauces lasted longer. He had eaten a radish rubbed with root of Caladium. [It seems to be commonly known that a trick of this kind will cause subject to lose voice.] (*L'Union Méd.*, 1862, xvi, 538.)

2. Two children ate a few pieces of stalk. They had delirium, occasional tendency to stupor, from which they would rouse up, cry, and talk incoherently, then perhaps drop off into stupor again; intense headache; eyes injected and watering; face flushed scarlet; lips swollen to even three times normal size; mucous membrane

of mouth and fauces greatly inflamed, saliva flowing profusely, with choking sensation and desire to swallow, which could only be accomplished with difficulty; saliva as it poured from mouth copiously streaked with blood; difficult articulation, patients talked as if they had filled their mouths with mush; intense burning pain in stomach, with frequent retching, but no vomiting; breathing laboured, irregular, and quickened; jactitation of limbs; pulse 120, very weak; temp. 103°. (J. C. BISHOP, M.D., *The Clinic*, vii, 306: from Allen.)

3. Mother of above ate a stalk about one inch long, said "her throat wanted to shut up, and felt as though ten thousand needles were sticking into it;" pain kept shooting up towards ears; burning and intense pain in stomach. (*Ibid.*)

CALCIUM.

Calcarea acetica. (Impure) acetate of lime, $Ca(C_2H_3O_3)_2$.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. v of original, vol. i of translation. Contains 270 symptoms from self and four others.

Calcarea carbonica. Carbonate of lime, $Ca\ Co_3$.

I. *Provings.*—HAHNEMANN, *Chronic Diseases*, Part 2 of original, vol. of translation. Contains 1361 symptoms from self and 4 others; obtained from soft white substance found between external and internal hard layers of oyster-shell (*C. ostrearum*, Hg.).

2. A young man took 5 gr. of 1_x trit. of same n. and m. for 4 d. In 3 d. after he had finished med., violent irritation about chest, neck, back, shoulders, and calves; over chest and neck a reddish rash was fully developed; great constipation, so that he had to take castor oil. [On another occasion, a similar pruritus and eruption followed 30th dil., and here also there was extreme constipation.] (ROBINSON, *Brit. Journ. of Hom.*, xxv, 322.)

3. A young woman took 3 gr. of 3x trit. 3 times a d. for 7 d. After this shooting pains in both sides of head, with nausea, unable to bring up anything; same pains under l. shoulder; unaccountably feverish, first hot and then cold. [Prover 2 had, after 30th, a feverish attack, with shooting pains through limbs, and swollen finger-joints.] (*Ibid.*)

4. KOCH proved preparation made by adding pure powdered chalk to dilute hydrochloric acid till effervescence ceases and the solution is neutral. To this solution carb. sodæ is added, and the precipitate well washed and dried. This is triturated with equal parts of milk sugar until the powder, when rubbed in the pestle with the fingers, feels as though it were moist. 20 parts of the powder to 100 parts alcohol make the undiluted tincture.

a. A—, æt. 31, a man of rather corpulent build and short stature, subject to hæmorrhoids which cause smarting and itching and mucous discharge. Stool generally every 2 d., with shooting pains as though a pointed body were passing. Is very sensitive to chills, which cause colic followed by profuse watery diarrhœa. He smokes and snuffs, drinks coffee and beer.—June 8th. 2½ h. after early dinner took 3 dr. of tinct. on sugar. After 45 m. tight feeling and shooting pain in region of r. 5th and 6th ribs; slight formication like ants crawling up l. temple; tickling in throat as if a small object lay there causing cough; lascivious

dreams at night, slight and incomplete emission of semen; peculiar jerking and drawing awry of the extremities at n., waking him.—9th. Pricking in l. eye as if a foreign body were in it; burning of eyes and lachrymation; fine tickling pricks through urethra; after dinner great pulsation of the vessels, especially in chest; pulse quick; lasciviousness at night.—10th. On waking m., eyes partially agglutinated, great watering of r. eye with burning; all d. dislocative pain in l. hip-joint. —11th. Great feeling of weariness in feet, especially ankle-joints, lasting 3 h.—12th. Slight shooting tearing pain in arms.—13th. Shooting-tearing pain in tibia, calf, and wrists; urine after standing a short while gets cloudy and deposits a whitish loose sediment, a fatty skin on its surface; the urine smells greasy.—14th. Weary pain in knees; dull drawing shooting pain in patella; watering of r. eye. On back of hand there appear groups of small vesicles filled with clear fluid, without areola, which itch violently; if left alone their apices become dark, gradually dry, and the epidermis scales off. If they are scratched they increase and look like nettlerash. Cold diminishes the itching. (He is liable to this eruption in summer.) Shooting in various parts of chest with tightness; shooting pain in l. finger-joints.—15th. On exertion shooting pains in joints.—16th, 6 a.m., 6 dr. In forenoon shooting in back; cramps in feet, especially when standing; sensation in throat as if something rose up in it and stuck there (also e.); fine needle-like pricks above l. inguinal region, as though in peritoneum; pulsation in pelvis in course of rectum; warm feeling in stomach; flying shoots in both knees; violent shooting pain in l. metacarpus; violent shooting wandering pains in all joints; pressure in stomach; stitches in region of l. 5th and 6th ribs; great weariness of feet; penetrating shooting pain in last phalanx of r. middle finger; tension in both calves; shooting pain in coccyx; loss of appetite; eructation of wind; nose dry all d.—17th. Eyes partially agglutinated, m. Forenoon, burning in stomach as from an acrid fluid; black specks hover before l. eye; slight shooting pains in joints. Afternoon, shooting pain in r. elbow-joint; penetrating shooting pain in 1st phalanx of r. forefinger; shooting pain when walking in l. side of sacrum; shooting wandering pains in several places, joints, muscular parts.—18th. Violent shooting in abdomen; shooting pain in l. side of sacrum when walking; burning, sharp pain in stomach. Noon, shooting pain in knee when driving. Next 4 d. no symptoms.—22nd, 8.30 a.m., 1 dr. The dose repeated every h. Immediately pressive pain in parietal region, apparently in bone; tensive pressure above nasal bones as though they would swell; trembling of body; sunlight hurts eyes and causes headache; slight pain and rumbling in small intestines, with sacral pains, and forcing towards rectum as though stool were coming; eructation of air; shooting pains in r. eye as though a foreign body were between lid and ball; feeling as if something were moving in the r. eye; spasmodic trembling of lower lid; tensive pressure in occipital bone; rheumatic pain in l. foot; shooting pain in l. shoulder-joint and l. ear; eructation of an acrid bitter fluid; l. lower lid spasmodically twitched towards inner canthus.—2nd dose. Spasm in eyelid; tearing in 1st l. upper molar; pain in sacrum; fine shooting pain all round

chest, about 4th and 5th ribs.—3rd dose. Shooting pain in r. shou
joint and dull shooting in l. hip-joint, both increased by moven
after dinner shooting in r. shoulder; shooting in r. humerus foll
by trembling of arm with twitching of some of its muscles;
lamed state of muscles of upper arm; watering of r. eye. (The
tion mentioned above extends.)—4th dose, 2 p.m. Aching and t
ness in scrob. cordis; pressive drawing tearing pain between sca
—5th dose, 3 p.m. Shooting pain in 1st joint of l. index; shoo
throbbing pain in r. frontal protuberance; shooting pains in nape;
in middle of forehead. After supper difficulty of swallowing
tongue behind were swollen; pains in nape with stiffness;
trating shoots in left metacarpus; stitches through chest, u
sternum, from before backwards; burning shooting pain in back bet
scapulæ; shooting pain in l. temple up the deep temporal nerve
restless, dreamful, imperfect erections.—23rd. On waking trem
of body and spasmodic jerkings of some muscular parts in thigh
arm; shooting in region of l. 7th and 8th ribs; sacral pains; such
weakness of legs as if they could not bear the body and the k
would knuckle under him; trembling of body; shooting in l. w
stitches up l. temple; at n. several erections; running diagonally a
under surface of penis a long-shaped, excoriated-looking sore, w
burns violently, with much sweat on scrotum and perinæum.—2
Violent shoots in l. wrist; after a warm bath great weakness in k
and ankles; tearing shoots in several joints.—25th. Pains in joint
so severe; eruption in hand extending.—26th, 27th, and 28th. No
symptoms. (*Hygea*, v, 318.)

5. *a.* Mrs. M—, æt. 26, 1 child ¾ year old; nervous and e
able, disposed to toothache in changeable weather.—May 26th, 5.30 a
took 4 dr. of tinct. 6.30 p.m., nausea, as though she would vo
for 2 h.; flow of tasteless water in mouth.—27th. Violent disloc
pain on moving l. arm; slight nausea.—28th. All d. nausea. 4 p
pains in lumbar region and ossa ilii as if menses were coming o
29th. Same symptoms, but slighter. From 30th no symptoms.—
15th. Took m. 3 dr. 7 p.m., very painful pressure in forehead d
nose; bruised feeling and weariness in all limbs; nausea till she w
to bed.—16th. Such weariness she could not walk; nausea.—1
No symptoms.—18th. Took 4 drops in m. 7 p.m., great weak
and weariness in extremities, especially lower, lasting till she wen
bed.—19th. No symptoms.—20th, m., 6 dr. From 2 p.m. ti
extraordinary soreness in all limbs; 7 p.m., nausea.—21st. Heavi
—22nd. No symptoms.

b. July 11th, m., took 2 dr. of 1st dil. At 11 a.m. nausea las
till afternoon; violent pressive headache in forehead; weariness;
stitches in chest on breathing.—12th. Symptoms milder; nex
gone.

c. July 22nd, m., took 6 dr. of 2nd dil. At 7 p.m. some r. su
orbital stitches.—23rd. No symptoms.

d. July 24th, 10 a.m., 3 dr. of 3rd. At noon, pressive fro
headache. Next d. same, but slighter. After that nothing more. (*H*

6. *a.* E. B—, servant girl, æt. 17, strong, suffers from perio

sick headache. For 6 months has had every m. a cramp pain in l. upper arm. First menstruation 3 months ago, since then only once more. —May 26th, 5.30 a.m., 3 dr. of tinct. No symptoms.—June 15th, m., 10 dr. No symptoms. 18th, m., 20 dr. 4 p.m., feeling in throat as if a worm were gnawing there, lasted till she went to bed. 7 p.m., great weariness in legs, felt as though they would give way, till she went to bed.—19th. No symptoms.—20th, m., 25 dr. No symptoms.

b. July 11th, m., 6 dr. of 1st dil. No symptoms.—14th, m., 12 dr. 10 a.m., head felt as if intoxicated, went off after dinner. No more symptoms.—17th, 2 p.m., 20 dr. No symptoms.—18th, 11 a.m. 4 stitches on l. side of forehead; all d. constant chilliness.—19th, m., stitches behind l. ear, sore-throat on swallowing.

c. Later, took 3 and 20 drops of 2nd dil., without effect, save some stitches in l. scapula. (*Ibid.*)

7. *a.* HILLER, schoolmaster, æt. 40, always healthy, snuffs and smokes and drinks beer. June 15th, 5.30 a.m., 3 dr. of tinct. Forenoon, shooting in scrob. cordis when breathing; tearing between scapulæ and in nape; pressure in stomach; confused head; tearing in l. forearm, in 1st joint of l. thumb, in r. thigh, in sacrum, in r. forearm, in l. malar bone, in 1st joint of l. little finger, in 1st joint of l. ring finger, in l. frontal protuberance, in r. foot, in 1st joint of l. index, in r. knee, in r. calf. Afternoon, tearing in r. calf, in sacrum, in r. thigh. —16th. Forenoon, tension in both sides of ribs over scrob. cordis; tearing in sacrum, in l. wrist, between scapulæ, in l. hand, in lower jaw, in nape, in both thighs, under r. arm; bitter taste. Afternoon, tearing in 1st joint of l. little finger, in sacrum, between scapulæ, in r. upper arm.—17th. Forenoon, tearing in l. metacarpus.—18th, 6 a.m., 2 dr. Forenoon, tearing in l. hand, l. thigh, l. calf, l. forearm, l. lower jaw, between scapulæ, in r. upper arm, in 2nd joint of l. index; itching in r. thigh. Afternoon, tearing betwixt scapulæ, in l. thigh.—19th. Forenoon, tearing in 2nd joint of l. little finger, sacrum, between scapulæ, in l. wrist. Afternoon, sacral pains, tearing in 1st joint of r. little finger, in r. knee, between scapulæ.—20th. Forenoon, tearing in l. knee, in r. knee, in r. upper arm. Afternoon, tearing in r. elbow-joint, in r. knee-joint, in coccyx, in l. thigh, l. and r. shoulder.—21st, 5.30 a.m., 6 dr. Immediately pain in stomach. Forenoon, tearing in sacrum, l. shoulder-joint, l. calf, l. upper arm, l. big toe, 2nd joint of l. thumb, r. hand, under r. arm, in l. hand. Afternoon, tearing in front of l. foot, in l. hand, in 2nd joint of l. index, in r. tibia, r. knee, l. hand, under r. arm, betwixt scapulæ.—22nd. Forenoon, tearing in l. knee, l. hand, l. tibia, l. thigh, r. wrist. Afternoon, tearing in r. ankle, in l. arm. —23rd. Forenoon, tearing in l. calf, both wrists, 2nd joint of l. ring finger, sacrum, betwixt scapulæ. Afternoon, tearing in sacrum, l. thumb, l. foot, betwixt scapulæ.—24th. Forenoon, tearing in l. thigh, l. calf, l. foot anteriorly. Afternoon, tearing in first joint of l. thumb. During the proving there appeared hæmorrhoidal lumps, the size of nuts, with violent itching in anus and constipation often for 2 or 3 d. Violent itching, smarting eruption on face, which bled on being scratched, and changed into nettlerash-like eruption.—25th and 26th. Slight tearing pains in extremities.

b. July 16th, 5.30 a.m., 1 dr. of 1st dil. Forenoon, tearing in nape, l. thigh, betwixt scapulæ, sacrum. Afternoon, tearing in r. middle finger, betwixt scapulæ.—17th. Forenoon, tearing. in l. forearm, both ring fingers; stitch-like tearing in r. wrist. Afternoon, tearing in 2nd joint of l. ring finger, in r. foot, nape, sacrum, 1st joint of l. thumb; shortening betwixt scapulæ.—18th. Forenoon, tearing in l. hand, l. arm, r. foot, r. thigh, sacrum, under l. ribs, in tendo Achillis, l. wrist, l. knee, l. arm, l. hand, l. thigh, r. knee, 2nd joint of l. little finger; tension in r. calf. Afternoon, tearing in abdomen near genitals, in nape, l. hand, behind l. ear upwards, in l. hip-joint, both arms, nape; stitch-like tearing in forehead.—19th. Forenoon, violent tearing in l. foot anteriorly; tearing in l. hand, betwixt scapulæ, in both wrists, sacrum, cervical muscles, l. index, 2nd joint of l. thumb; pains in r. ribs. Afternoon, tearing betwixt scapulæ, in l. ring finger, l. foot, r. wrist, r. ankle, r. shoulder-joint, l. knee, l. thigh, r. elbow, 2nd joint of r. thumb, teeth; sacral pains; stitches in brain; stitch-like tearing in l. knee.—20th. Forenoon, tearing in both feet, sacrum, under r. arm, below l. scapulæ, in both thighs, in l. pelvic bones, l. foot, l. ear, r. calf, l. hand, r. knee, l. foot anteriorly, l. thumb, l. eye. Afternoon, tearing in sacrum, l. hip-joint, r. foot, r. instep.—21st. Forenoon, tearing in 1st joint of l. thumb, in r. arm, in neck, l. wrist, r. tibia, between scapulæ. Afternoon, tearing in r. knee, betwixt scapulæ, in l. ankle, 2nd joint of l. ring finger; stitch-like tearing in l. tendo Achillis.—22nd. Tearing in l. hand, l. knee, l. tendo Achillis, betwixt scapulæ. Afternoon, tearing under r. arm, in sacrum; tension in r. knee-joint.—23rd. Forenoon, tearing in l. hand, r. thigh. Afternoon, tearing in r. knee, in r. side of neck, in l. arm.—24th. Forenoon, shooting betwixt scapulæ; tearing in r. thigh, 2nd joint in r. thumb; stitch like tearing under r. arm. Afternoon, tearing under r. arm, r. hip-joint, and tension in r. knee.—25th. Tearing under r. arm, in r. thigh. After this no more symptoms.

c. Aug. 3rd, 5 a.m., 2 dr. of 3rd dil. Forenoon, tearing in l. wrist, in 2nd joint of l. thumb. Afternoon, tearing in l. wrist.—4th. No symptoms.

d. Aug. 5th, 5.30 a.m., 3 dr. of 6th. Forenoon, tearing in 2nd joint of l. thumb, in r. instep, r. arm. Afternoon, tearing in l. arm; sacral pains.—6th. No symptoms. (*Ibid.*)

Calcarea caustica. Calcic hydrate, CaH_2O_2.

I. *Provings.*—1. Koch. 1 oz. caustic lime was put into a warmed bottle and 5 oz. water poured over it, the bottle corked up and let stand till cold; then the bottle's contents well shaken up and 5 oz. alcohol added. After several d., during which the bottle was repeatedly shaken, the clear liquid was poured off into smaller bottles and kept from contact with air. This is ϕ.

a. A—,* March 7th, 6 a.m., 6 dr. of ϕ. Immediately tearing-drawing (rheumatic) pains in l. shoulder-joint spreading all over upper arm, so violent he could not raise arm; the chief seat of the pain is in the deltoid muscle, in the fascia and joint; lasts 3 h. After 1 h. tearing

* The first four provers the same as in Koch's proving of Calc. carb.

pain in l. temple to l. frontal protuberance; tensive sensation in stomach. After dinner offensive breath; palate feels as if mucus were there, but none comes away; shooting pain in region of l. 6th and 7th ribs, increased by inspiration, passing into tearing pain; its seat seems to be intercostal muscles and pleura costalis; similar pain in both hypochondria, especially l.; trembling of extremities; in l. arm and feet slight rheumatic pains. 9 p.m., pressing-asunder pains in interior of l. ear; tearing in nape muscles; no stool to-day; in bed, trembling of extremities and weariness.—8th. Slight rheumatic pains in nape, sacrum, and upper arm; the hæmorrhoidal lumps (to which he was subject) seem smaller. In e., shooting pain through both ears.—9th. No symptoms in forenoon. At 2 p.m., 6 dr. Immediately violent, shooting-tearing pains in l. Eustachian tubes extending to meatus auditorius internus; eructation of food with sourish-bitter taste, and of air; tearing up r. temple; in l. lower canine tooth transient tearing pain; much yawning; great prostration and trembling of body; great hunger 3 h. after a meal; feeling in gullet as if a bone stuck there; pulse quick, then slow. In e. sacral pains; a little wine drunk in e. makes him feel intoxicated. N., very restless, tossing about, sleeplessness, head very confused.—10th, m., feels unwell as though he had been drunk the day before (hæmorrhoidal diarrhœa, which he has repeatedly without taking medicine).—11th, 9 a.m., 6 dr. Yawning; stitches below l. 6th and 7th ribs; rheumatic pains in l. shoulder. 5 p.m., dull rheumatic pains in occiput; e., when drinking beer, head very confused; no stool to-day; trembling of extremities; dull, tearing, shooting pain in two carious molars, which feel enlarged; emission at n.—12th. After breakfast a thin pappy stool with much mucus; violent shoots in bowels, like fine knife-thrusts (accustomed to this symptom); head extremely confused; dull, pressive pain in forehead going to occiput, so that he could scarcely do his business; stiffness in all nuchal muscles. 10 p.m., when reading, burning in eyes.—13th. A corn on l. 3rd toe has shooting pain.—14th. Corn painful. After this no symptoms.—22nd, 10 p.m., 3 dr., then went to bed. An emission at n.—23rd, m., pressive-tearing pains in sacrum; tension and stiffness of nape and occiput; flying stitches in r. hip-joint; head very confused, e. after beer; violent, shooting, out-pressing pain in interior of l. ear, this last continuously, more or less severe; slight rheumatic pains in r. shoulder-joint. N., very restless; head very confused.—24th. On waking, pain in sacrum, going off on moving; pressure on chest like nightmare, going off in ½ h.; nose for the last 2 d. dry and secretes thick viscid mucus. Forenoon, confused head, especially on l. side, with periodical stitches; the headache is of a pressive character, making mental work difficult; constant pain in ear; no stool to-day; feeling of intoxication on drinking beer, e. N., restless, dreams, great nightmare; the carious back molars give much pain and feel too long.—25th. Pressive-shooting pain under sternum, over precordium and hypochondria; fœtid mouth. N., no sleep, many dreams, not remembered.—26th. Forenoon, same symptoms, but milder. Afternoon and e., no symptoms. Quiet night.

b. April 4th, 2 h. after breakfast, 4 dr. of 1st dil. Forenoon,

shooting pain in l. hip-joint when treading and in open air. Aft
dull shooting pain in l. ear, as though something were in it; d
in l. carious upper molars, which seem to be too large; confused
violent stitches in small intestines when bending forwards. 1
shooting-tearing pain in r. thumb; no stool; n. very restless, sl
many dreams, unremembered.—5th. Head confused with pres
forehead, and flying stitches in temples; dull pain in both ears.
headache as before; stool, which during the proving had alway
painful, as if nails were passed, not painful, piles quite small. I
dinner, a violent shooting pain from r. eye to frontal protuberanc
waters; slight rheumatic pains in r. shoulder; offensive mouth,
mucus, especially on velum pendulum palati.—8th. Watering
eye.—9th. R. eye waters, pain in it as if something were under
lid, stitches from eye to forehead, conjunctiva palpebr. red.—10th.
making exertion or in awkward position of a joint, drawing-tearing
—11th, 2 h. after breakfast, 4 dr. After dinner drawing-tearing p
1st joint of l. index, passing into dislocative pain; confused
rheumatic pain in biceps, deltoid, and elbow-joint; shooting-te
pain in l. temple; watering of r. eye; tearing and shooting in l.
stitches in r. elbow-joint; sleep uneasy, full of disagreeable drea
12th. On waking as if had been intoxicated; shooting in l. wris
metacarpal bones; single stitches in l. side of chest. 5 p.m., cr
like shooting pain in l. ear to opening of Eustachian tube. 10
rheumatic pain in l. shoulder-joint; stitches across sternum; n.
less, sleepless, with constant toothache in l. upper carious molar;
ache.—13th. Rheumatic pains alternately in all joints; stitches
r. hip-joint to middle of thigh; confused head, especially in foreh
stitches in l. side of larynx; watering of eyes in open air. N., rest
many dreams.—14th. Pain in arm as before, also rheumatic pain
all joints, but not so severe.—15th, 10.30 p.m. Rheumatism i
scapula—16th. No symptoms.—22nd to 24th. Every n. at 2
violent toothache, as though teeth were furry and too large; also
sive pain in l. ear as though something were in it.

c. April 26th, 2 h. after breakfast, took 6 dr. of 2nd dil. Im
diately stitches in course of l. supra-orbital and supra-trochlearis ner
confused head. After this no symptoms.—May 4th, 8 a.m., 2 dr.,
this dose repeated every h. 4 p.m., shooting-tearing pain in r. shoul
—5th to 8th. No symptoms.—9th. Smarting itching eruption
red areola, and filled with purulent fluid (where? not stated).—1
9 a.m., 6 dr. No symptoms.—11th, 9 a.m., 12 dr. After 2 h. sh
ing pain in l. frontal protuberance; after dinner shooting in regio
l. 5th to 7th ribs; in e. a drawing-tearing dull pain in l. forearm
in bone or interosseous ligament; head much confused, especiall
side; dull drawing toothache in carious tooth. N., restless, m
dreams.—12th. On rising, m., weary and cross; head confused
forenoon, as after intoxication; dull stitches in l. side of forehead
temple; coryza especially of l. nostril; two painless stools. N
pinching in abdomen with flatulence; in lower part of l. tibia
brownish-red painless spots, some discrete, some confluent, size
farthing, like fleabites; skin somewhat swollen, lasting 14 d.—1

n. nearly sleepless, full of dreams; much tossing about in bed; shooting-tearing pain in nuchal muscles all d.—14th and following d. No symptoms.

2. *a.* Mrs. M—, æt. 26, March 7th, 6 a.m., 6 dr. of tinct. In e. transient sensation as if hairs were drawn up from head.—8th. No symptoms.—9th, 6 a.m., 6 dr. No symptoms. 2 p.m., 6 dr. After ½ h. jerking, boring pain in r. upper orbital border; after 1½ h. great weariness of limbs; trembling of limbs; pains in sacrum; peculiar pains (like rheumatism) in both scapulæ. 6 p.m., transient tearing pains from l. supra-orbital border to inner canthus and down nose.—11th. Burning in eyes, e., when exposed to light; redness of conj. palp.; photophobia.—12th, 13th, 14th. Same symptoms, only slighter. After that no symptoms till 17th. Violent itching and pricking on skin, especially of nape and back, there occurs there an eruption of small vesicles filled with lymph surrounded by a red areola.—18th. Eruption as before on chest, neck, behind ears on occiput; no more rheumatic pain or toothache.—19th. Eruption still there.—20th. No symptoms. 21st, 9 p.m., 3 dr. No symptoms.—23rd. After a foot-bath last night has to-day a return of tooth and head ache.—24th. The pain very severe, is chiefly in r. maxillary joint, which is swollen.—25th. Pain very severe, the joint immoveable and cheek swollen. 10 p.m., 3 dr.—26th, m., 3 dr. Violent pain on moving jaw. Cheek much swollen. Pains declined towards e.—27th. No pain except when pressing on the maxillary joint, which is still somewhat swollen. The next d. all right, swelling gone.—April 4th. From 9 a.m., 2 dr. every h. Great chilliness at n. when going to bed.—5th. From 7 a.m., 2 dr. every 2 h. Great chilliness before rising, m.; transient, pressive pain in forehead. 3 p.m., violent pains in both upper eyelids, so that every movement of eyes is attended with pain. 7 p.m., very violent chilliness for ½ h.—6th, 8 p.m., feeling of numbness and gone to sleep in both scapulæ.—7th. No symptoms.

b. April 8th, 2 h. after breakfast, 4 dr. of 1st dil. No symptoms.—11th, 5.30 a.m., 4 dr. Stitches from l. ala nasi going up nose to inner canthus of eye; on going to bed, e., violent chill; smarting in nipples.—12th. No symptoms.—13th. On stooping violent pains in head as if brain fell forward.—14th, 10 p.m. Violent shooting pains in r. knee on treading, lasting in bed on moving.—15th to 19th. No symptoms.—20th. Menses came on 8 d. too soon; eruption on neck and back as on 17th.

c. April 25th, 5.30 a.m., 6 dr. of 2nd dil. Eruption on neck and back smarting much.—26th. Rheumatic-nervous pain in r. maxillary joint when pressed.—27th. The same.—28th. No symptoms.—29th, 9 a.m., 6 dr. After 1 h. nausea with eructation of frothy fluid; general soreness for 1 h. Afrer dinner transient dull tearing pain in l. upper arm, from shoulder to elbow.—30th. In region of spleen a pain as if a ball turned on its axis; when sitting, violent pain betwixt scapulæ extending to sacrum; small miliary rash on forehead.—May 1st. Eruption on neck, nape and back.—2nd and 3rd. No symptoms.—4th. From 6 a.m. 2 dr. every h. No symptoms.—6th. For past 14 d. hawking up granular viscid stuff (like boiled rice), which accumulates.

—7th to 9th. No symptoms.—10th, 6 a.m., 6 dr. No sym
—11th, 6 a.m., 6 dr. No symptoms.

3. *a.* E. B.—, March 7th, 6 a.m., 6 dr. of ϕ. After 2 h. tearin in l. frontal protuberance; violent shooting pains in sacrum lasti noon; 5 p.m., paralytic state of r. hand, so that she cannot lif thing.—8th, paralytic state as before, but less.—9th, 6 a.m., Shooting pains in sacrum; contractive pains in abdomen to uterus; shooting in both lumbar regions.—10th. No sympto 11th, 9 a.m., 6 dr. No symptoms.—12th. Before breakfast 3 stools in rapid succession, and one after breakfast.—13th to No symptoms.—21st, 9 p.m., 3 dr.—22nd. On rising sore-t swallowing painful, lasts all d. 5 p.m., tearing pain from outsid tibia to toes.—23rd. Same pains, only slighter.—24th to 3rd No symptoms.—4th, from 9 a.m., 2 dr. every 2 h. till 9 p.m. 11.30 a.m., slight pains in sacrum; at noon shooting in sac rumbling in belly. 5 p.m., violent stitches in r. hip-joint on tre lasting 2 h.—5th. From 5 a.m. 2 dr. every 2 h. Noon, teari both scapulæ, between shoulders, then in nape up to occiput and head; feeling as if hairs were pulled upwards; tearing in both and through feet, and in r. shoulder; 7 p.m., violent rigor for followed by great heat in head for ½ h.; tearing in forehead eyebrows; vertigo, as if room spun round, thinks she will fa chair.—6th. No symptoms.

b. April 8th, 2 h. after breakfast, 4 dr. of 1st dil.. 6.30 shooting pain up l. temple.—9th. On rising, m., as if a thorn w l. eye, cannot open eye. 6.30 p.m., same pain as before in l. te —10th. No symptoms.—11th, 5.30 a.m., 4 dr. 6.30 p.m., sh in sacrum. 7.30 p.m., violent rigor so that teeth chatter.—12th. after rising pain and stiffness of nape. 11.30 a.m., shooting scapula, under r. short ribs, in point of r. elbow, in r. knee, in f sinus and both temples; after dinner throbbing pain in frontal so that she must always frown, which gives relief, for ½ h. 9 violent throbbing pain in forehead; trembling in arms and legs.— pain in 1st phalanx of r. big toe on moving joint.—14th to 20th. symptoms. (*Ibid.*, 270, *et seq.*)

4. *a.* HILLER. March 8th, 6 a.m., 6 dr. of tinct. Tearing pa sacrum, r. knee, l. shoulder-joint, back, l. axilla, 1st joint of r. i tightness over epigastrium and hypochondria; stiffness of nape; sh in r. sole; in e. confused head.—9th. Slight tearing in r. sho joint.—10th, 6 a.m., 6 dr. Tearing in both upper arms and r. t shooting in l. upper arm; confused head; sacral pains; tension knee-joint.—11th to 13th. No symptoms.—14th, 6 a.m., Forenoon, headache in forehead and above eyes; tearing in l. t and middle finger. Afternoon, sacral pains; tearing in nape with ness; dull pressive headache in middle of skull superiorly; restless with anxious dreams.—15th. Tearing in l. thumb and middle and sacrum; difficulty of thinking.—16th. Same pains and teari r. arm.—17th to 27th. No symptoms.—27th, 6 a.m., 3 dr. noon, headache in forehead and above eyes; tearing betwixt sca sacral pains; tearing in 1st joint of r. little finger, in r. hough.

noon, tearing in coccyx, in l. sole, in r. shoulder-joint, in 1st joint of l. little finger; in l. elbow-joint, through interior of both ears; great drowsiness, e.; restless sleep with dreams.—28th. Frontal headache, tearing in l. thumb and middle finger and nape, in l. metacarpus, in r. thigh.—29th. No more symptoms.

b. May 11th, 8 a.m., 6 dr. of 1st dil. Forenoon, pain in sacrum; tearing betwixt scapulæ, in r. thigh, in r. axilla, in l. hip-joint, in l. hip-joint, in l. wrist, in nuchal muscles. Afternoon, shooting in r. lower ribs; tearing in 1st joint of r. little finger, in r. shoulder, in 1st joint of l. thumb.—12th. Tension in calves; tearing between shoulders, in r. forearm, in l. knee, in both thighs. Afternoon, tearing in l. half of lower jaw, in l. ankle-joint, down l. calf; dislocative pain in r. hip-joint; stitches through head from before backwards.—13th. Tearing in l. forearm, betwixt shoulders, in l. hand, in 1st joint of l. thumb, in head, in nape, in coccyx, in r. knee-joint, in l. tendo Achillis. —14th. Tearing in r. thigh and knee-joint.

c. May 25th, 8 a.m., 10 dr. of 3rd dil. Forenoon, tearing in sacrum, muscles of nape, betwixt scapulæ, l. heel, r. calf, r. thigh. Afternoon, tearing in lower part of r. tibia, in r. thigh, under l. arm, in l. hand, r. foot, both wrists, 1st joint of r. thumb, both knee-joints, l. ankle-joint, r. mastoid process, r. malar bone; smarting vesicles filled with lymph on various parts of body.—26th. Forenoon, tearing in l. knee, 1st and 2nd joint of r. thumb, l. thigh, nape. Afternoon, tearing between shoulders.—27th. Afternoon, tearing in r. knee, l. arm, l. hand, l. wrist, l. thigh.—28th and 29th. Very slight tearing in arms and legs.

5. Mrs. H—, æt. 40, very robust, 7 years married, 3 children. In perfect health.—March 14th, 6 a.m., 6 dr. of tinct. Forenoon, tearing sacral pains; head confused. Afternoon, tearing pain from r. inner canthus down to upper lip, with feeling of swelling of part; stiff neck from noon till e.; restless n., with confused head.—15th. Mucus in throat difficult to hawk up, this nearly causes vomiting for 2 d.; confusion of head. No more symptoms.—27th, 6 a.m., 3 dr. Forenoon, dull frontal headache; great pressure and heaviness of eyelids; pain in occiput involving whole head. Afternoon, stiff neck; sacral pains; rheumatic pain between scapulæ with shooting on manipulation and tightness to sternum; tearing in r. shoulder-joint; horripilation up back; molars feel furry; tearing pains from eye to upper lip.—28th. Restless n., many dreams; mucus in throat as above, sacral pains. No more symptoms. (*Ibid.*)

6. *a.* K. B—, servant girl, æt. 17, scrofulous habit, healthy.—March 10th, 6 a.m., 6 dr. of tinct. Noon, stiff neck; frontal headache, especially above eyes; heat in head. No more symptoms.—14th, 6 a.m., 6 dr. No symptoms.—27th, 6 a.m., 6 dr. Forenoon, frontal headache. Noon, violent headache; stiffness in maxillary joints; molars seem too large and are painful.

b. May 14th. Took 14 dr. of 1st dil., without effect save some tearing in r. hip. (*Ibid.*)

7. J. L—, æt. 25, surgeon, robust, but subject to blind piles.—March 11th, 1½ h. after breakfast, 6 dr. of tinct. After 1 h. slight tearing

pains in abdomen; vertigo; pressive pain in occiput. Noon, shooting-tearing movements in rectum towards anus; tearing stitches through eyeballs; pain in eye as if it were pressed out. N. good, but woke in m. with tension of skin.—12th. Vertigo.—13th. Tiresome tension in lower extremities; wandering pains in limbs; great weariness; anorexia. —14th. Same symptoms.—15th. Anorexia; bitter taste; thickly-furred greenish-yellow tongue; tendency to vomit; tearing from occiput to forehead; sacral pains; rumbling and pinching in abdomen. Noon, continued chills followed by heat.—16th. Symptoms like those of yesterday, better in the e.—17th to 20th. No symptoms. —21st, 1½ h. after breakfast, 3 dr. In ½ h. tearing in abdomen; pressive pain in whole head; vertigo; tension of cervical muscles on both sides; very confused head (after 2 h.); nausea and desire to vomit; spasmodic contraction of stomach. Noon, great weariness; trembling of limbs; vertigo; stitches in eyeball.—22nd. Vertigo.—23rd. No symptoms.—24th. Frequent tension or aching in inner ear.—25th. No symptoms.

b. April 11th, 3 p.m., 4 dr. of 1st dil. Vertigo in e.; before going to stool great burning of skin.—12th. Vertigo m.; creeping in rectum and anus; tension in back.—13th. All d. vertigo; tearing and shooting in eyes.—14th. No symptoms.

c. April 26th, 9 a.m., 4 dr. of 2nd dil. Vertigo. Afternoon, tearing in eyes; drawing in sacrum; hæmorrhoidal sufferings.—27th. Vertigo; pain in eyes; confused head; tightness across sternum.—28th. Pressive pain in chest; cough with expectoration of mucus and blood; singing and roaring in ears.—29th. Pressive pain in chest; mucous expectoration with streaks of blood.—30th. Same symptoms, but slighter. No more symptoms. (*Ibid.*)

8. *a.* L. E—, servant-girl, æt. 16, quite healthy.—April 11th. In m. 6 dr. of tinct. No symptoms.—12th, m., 6 dr. Tearing in frontal sinus; confused head; shooting in larynx; hoarseness; pinching in abdomen.—13th. Shooting in l. side of chest. Noon, when breathing stitches in chest and cough.—14th. Headache so that she could not think.

b. April 25th, 5.30 a.m., 6 dr. of 2nd dil. 6 p.m., tearing in l. knee.—26th to 28th. No symptoms.—29th, 9 a.m., 6 dr. ½ h. after dinner nausea lasting ½ h., then vomiting of sour fluid.—30th. Pain in l. shoulder-joint when arm hangs, all d.—May 1st to 3rd. No symptoms. (*Ibid.*)

9. C. F—, a woman, æt. 25.—April 11th, m., 6 dr. of tinct. Vertigo; pinching in abdomen; hoarseness; feeling of roughness in windpipe.—12th, m., 6 dr. Hoarseness; cough; pinching in abdomen; weariness.—13th. Vertigo; severe cough.—14th. Feeling in head as though she would go mad. (*Ibid.*)

10. Mrs. R—, æt. 32, delicate constitution.—March 20th. Took a teaspoonful of tinct. Great confusion of head in front; vertigo; great weariness; stitches in chest; cough with some bloody expectoration; hoarseness; pains in throat; these symptoms lasted 4 d. (*Ibid.*)

11. E. N—, a servant-girl, æt. 20, healthy.—March 20th. Took a teaspoonful, and in ½ h. half a teaspoonful. Severe chill; hoarse-

ness and pain in throat, cannot swallow; violent headache; cough with stitches in chest; pinching in abdomen; extreme exhaustion, must lie down. The throat symptoms and cough lasted 8 d. (*Ibid.*)

12. A woman, æt. 40, whom I had treated for arthritic disease, got aq. calcis ℥iv, to take 2 teaspoonfuls every n. and m. After taking it for some time she said that it caused burning in fauces and œsophagus, and dryness of mouth. The inner m.m. of lower lip was slightly reddened and traversed by small blood-vessels; also burning in stomach. (KEIL, *Z. f. h. Kl.*, iii, 149.)

13. Took aq. calcis in teaspoonful dose. Chilliness for several weeks in summer. In doses of 1 to 2 teaspoonfuls daily it caused red and dry eyes—a kind of conjunctivitis, obstinate chilliness, sometimes constipation, falling out of hair. (LIEDBECK, *A. h. Z.*, xlv, 38.)

Calcarea iodata. Iodide of calcium, CaI_2.

I. *Provings.*—1. W. J. BLAKELEY, M.D. Dec. 9th, 1866, at 9.30 p.m., took 3 gr. of 1st cent. trit. of C. iod. In 10 m. dull heavy pain in forehead, sharp and piercing in r. temple; followed by dull heavy lameness in r. arm; persistent itching on r. elbow, afterwards same on l. knee; aching in l. temple also; fulness in forehead, aggravated by stooping; severe laming pain in external portion of r. arm, with numbness of hand and fingers. On waking next m. had still same dull aching as on previous n. At 7.50 a.m., repeated dose. Immediate attack of same dull headache as before, and constant evacuation of large quantities of wind downwards. Repeated dose at 10 a.m. While riding, 1½ h. later, against a cold wind had very severe headache over forehead and in temples. Repeated dose at 5.20 p.m. After 1 h. itching in various parts of body, migrating from place to place, only relieved after much scratching. At 7.20, took gr. ss. After 5 m. mouth and gums burn like fire; astringent taste, as of alum; severe dull headache in forehead and both temples, especially r. Pulse 80, regular and soft. Tired feeling in legs, especially calves, and weariness of whole body. Next d. frontal and temporal pain persists. At 1.30 p.m., 6 gr. of 1st trit., and at 10.15, 3 gr. of 2nd trit. While making latter temporal headache increased; after taking it slight pain in abdomen and across anterior upper third of both thighs as if beaten. Next d. frontal pain extends to r. side of face and a molar tooth; and again great evacuation of wind. (*Hahn. Monthly*, iii, 267.)

2. Mr. J. L—, æt. 30, nervo-bilious temperament. Dec. 10th, 1866, 10.15 p.m., took 3 gr. 2nd cent. trit. 11 p.m., light-headed; easy indolent feeling, indifference to anything; "sensation as if my head wasn't, yet was" (Dr. Blakeley did not see the prover again, and cannot explain this sensation). 11.10 p.m., numbness and ringing in ears; inclined to belch wind (after 1 h.); slight hiccough. 11.20, rumbling in the bowels with discharge of wind. 11.35 p.m., slight nausea; dry furred feeling on lips and tongue. Dec. 11th, 7 a.m. Slight giddy headache, pain over eyes, stiffness of back of neck, desire for stool, with great discharge of wind. 7.20 a.m., took 3 gr. 2nd cent. trit. 8 a.m., stiffness of neck continues. 9 a.m., bitter taste in

mouth like myrrh, not disagreeable. 9.20 a.m., bitter taste partially relieved by tobacco. Dec. 12th, 7.30 a.m., took 3 gr. 2nd cent. trit. 11 a.m., no symptoms save fulness of the head. 11.35 a.m., slight pain in the head, with heaviness over the eyes and nose. (*Ibid.*)

Calcarea muriatica. Calcium chloride, $CaCl_2$.

I. *Provings.*—1. Dr. AUGUST WIMMER, æt. 57, experimented in Oct., 1876, for 3 weeks, and in April, 1877, for 4 weeks. For 1st week of each period he observed his body in health; for 2nd week he took daily 0·5 grm., for 3rd week 1 grm. of salt in a glass of water. Following are results of second experiment, but are in perfect harmony with those of first.

a. Appetite, tongue, heart and pulse were unaffected. During 3rd week there was increased thirst. The drug has a decided diuretic effect. In 2nd week urine increased daily by 68 grms., beginning from 4th d.; in 3rd week by 29 grms. In 4th week, though thirst required an extra 75 grms. of fluid, urine increased by 60 grms. only.

b. Stool remained of normal consistence till 4th week, when it became more pappy. In 3rd week it increased daily by 6 grms. and in 4th by 19 grms.

c. Discharge through skin and lungs hardly changed at all in 2nd week; in 3rd it fell by a daily average of 13 grms.; in 4th it rose by 40 grms., but this increase is probably to be ascribed to higher temperature of this period, causing increased perspiration.

d. Notwithstanding diuretic effect there was increase also of solid matters in urine. Sp. gr. increased regularly from 1012·5 in 1st week to 1023·2 in 4th. All constituents participated in this increase save uric acid, which in 4th week was less by 0·704 grm. *per diem*, urea being more by 5·42 grms., sulphuric acid by 1·69 grm., chlorine by 2·26 grms., and phosphoric acid by 0·79 grm. Regular decrease of weight of body corresponded with increased oxidation, so that during 3 weeks it lost 1700 grms. (1·7 kilo.). State of health also changed for worse about middle of 4th week. A feeling of exhaustion, weakness, and disinclination for work began to be felt; and though from the increased oxidation a demand for more food might have been expected, there was actually an indifference to it. (*The Saline Waters of Kreuznach*, 1878: from Allen.)

Calcarea phosphorica. Tricalcic phosphate, $Ca_3 2PO_4$.

I. *Provings.*—1. HERING.—*a.* From 2nd trit.—Easily excited; headache,—like a confusion all over inner sides of skull (*sic*),—in m. on waking, a heavy painful confusion, as if close to bone, from within and without, worse on vertex, disappearing on mental, returning on (or aggravated by) bodily exertion, relieved by washing with cold water,—like a fulness, a painful pressure of brain against skull, most severe on top, first recurring at short regular intervals, then continuous, aggravated on any movement, especially on rising from sitting or recumbency (when it is accompanied with vertigo), better while lying still,—with hot head and face, together with ill-humour and indolence, —in m., with sore-throat,—not aggravated by taking wine, but severe on

going afterwards into open air, relieved while scratching head,—better at first from going out; sensation as if something were in eye, felt always anew if even after several d. it is only mentioned; violent painful biting in l. eyelid, towards external canthus, compelling violent rubbing, which causes pain, but does not relieve; frequent violent sneezing, with running from nose and flow of saliva, thin bright streaks of blood on mucus; sometimes sensation as if something had got into nose, which could not be got out; kind of contraction in throat, as after much weeping or after running; sore-throat in m. on waking, worse r. side, low down in back of fauces, worse when swallowing, disappears during breakfast, warm drink causing no pain; nausea after coffee, incipient heartburn and exceedingly unpleasant sensation, with confusion and pain of head and great ill-humour; difficult passage of flatus, followed by slight relief; very dark urine in afternoon, quite unusual; cutting-drawing pains in glans penis, extending towards tip, only while sitting, not very severe, but sensation exceedingly unpleasant; creaking on l. side of sternum, like cracking in joints; tensive pain below r. shoulder-blade, extending forward; pain and numbness of l. arm in afternoon (drug taken in m.); no sleep till 2 or 3 a.m.; dreams of dangers, without fear,—of fire, without many flames; especially chilly when going into open air, but warm room is oppressive.

b. From crude salt.—Headache in afternoon, with diminished appetite and dread of labour, some pressure on both sides towards back, relieved for awhile during supper, but continuing somewhat during e., relieved 3 or 4 times by sudden sneezing, which leaves sense of soreness in nostrils, some remaining next m., but with general well-feeling, unusual appetite, and more readiness for work; itching on scalp, provoking scratching, for several e.; severe burning pain excited thereby on small spot above r. ear, with great sensitiveness to slightest touch, disappearing suddenly; itching in eyes; itching and soreness within r. angle of nose near tip; sensation as if something were sticking into lower incisors, it feels like a small painful swelling of the gum; saliva copious and acid; appetite better than for a long time previously; diarrhœa after cider,—in which were many small white points, or flakes, like pus, scarcely perceptible (3rd d.); stool in e. (unusual), scanty, with very much flatulence; genito-urinary organs seem generally affected after passage of stool and urine; frequently obliged to take a deep, sighing breath; sound sleep at first, but early waking; many dreams, quite unusual, with thoughts about many events; frequent creeping shiverings, with motion of scrotum (not like that after urinating).

c. Without indication of dosage,—pain beneath hollow of knee every time it is strongly bent (as, for example, in drawing on boots, when it hurts greatly), making use of whole limbs uncertain, as in walking and jumping. (Allentown Provings, 1837: from Allen.)

2. Bute proved 4th on several persons.

a. Great weakness and weariness soon after taking it; sharp pains in stomach and knees, with headache, lasting whole d. Next m. pain in r. great toe, worse when walking, lasting all d. After a few d. repeated dose, which renewed pain in stomach and headache, with

diarrhœa; pain in stomach continued next d., was very severe at times, with watery and burning stools; diarrhœa continued 3rd d., with violent pain in stomach on every attempt to eat anything; much better 4th d., well on 5th.

b. Woman, soon after taking it, felt weak and prostrated, with flushes of heat in head; 3 h. later severe pain in r. knee, so that she could scarcely walk; she felt as though she had received blow on inner side of knee; with pain, sensation of soreness, both lasting 2 d. A 2nd dose taken some d. afterwards had same effect, aggravated by bending knee.

c. Daughter of above, æt. 12, had same symptoms from same dose, only more severe; weakness, severe headache, pain and sense of soreness in l. thigh, which after a time extended into knee, and lasted there 24 h.; after disappearance of pain knee still sensitive to touch, as if beaten.

d. Son, æt. 10, was also affected by violent pain in l. knee, extending to sole of foot.

e. An infant she was nursing, and which had just begun to stand, would not stand any longer.

f. While nursing 5th child during 6th month, 4 dr. in water caused labour pains going down thighs, with involuntary stool, and some blood from vagina (in a strong, healthy woman, who never had catamenia while nursing before).

g. Following symptoms are given without note of subject:—Very offensive diarrhœa; diarrhœa and pain in ball of thumb; pain in region of kidneys, when lifting, digging, blowing nose, frequently so violent as to cause crying out; urine dark-coloured, hot, smelling like strong tea; severe pain above sacrum, and in hips, soon after taking it; loss of power of whole l. arm, for 1 h.; very sensitive pain from l. elbow-joint to shoulder; all fingers feel paralysed; pain in fingers of r. hand when writing in e.; ulcerative pain in roots of finger-nails of r. hand, especially of middle finger; sharp pains in both knees when walking in afternoon of 2nd d.; pain in r. calf, so violent that he could scarcely raise leg (m. of 3rd d.); very unpleasant formication over whole abdomen, for 1½ h. (5 h. after 8 dr.); she feels very uncomfortable; distended veins. (*Ibid.*)

3. Green.—Much flatulence and borborygmus, with some pain, after 2 doses of 1st; same, but much more severe, after a 3rd dose, together with confusion of head, which soon increased to a dull pain, which was always more sensitive on stooping; this continued more or less severe during whole d., till a thin evacuation followed, preceded by sensitive pain; quite well next d. From 2nd had meteorism and pain in abdomen, followed by stool and immediate relief of symptoms. (*Ibid.*)

4. Humphry.—Proved 2nd; symptoms occurred after 2nd dose, and gradually diminished till 4th d., when they disappeared. They were—complete loss of memory, so that he forgets what he has just done, or what he should do next; towards noon of 1st d. nausea lasting 2 h., with vertigo and headache, worse when stooping, also flatulence in abdomen, head and thoughts confused; pains in various parts of body, frequently shooting along muscles into joints,—small of back, knees, and thumbs are specially affected. On 3rd and 4th d., severe

pain in abdomen, with flatulence and unusually frequent stools, at first natural, afterwards soft; also frequent copious passage of urine, with weakness and weariness. (*Ibid.*)

5. S. M. CATE, M.D.—Proved drug prepared as follows:

Five parts of calcined ox bones, finely powdered, were well mixed with 6 parts of oxalic acid and 20 to 30 of distilled water. After standing 24 h. whole mixture was filtered for purpose of separating precipitated oxalate of lime. The solution of phosphoric acid after standing till all extraneous particles had subsided was decanted, and bicarbonate of soda added in small quantities till acid reaction ceased. This solution of phosphate of soda was evaporated on a sand bath till it crystallised. The crystals were then collected and dried on a filter. To boiling acetic acid pulverised oyster shells were added as long as the acid would act on them, and the clear solution evaporated and crystallised. One and a half parts of the phosphate of soda, and one part of the acetate of lime, were each separately dissolved in convenient quantities of water, and the two solutions mixed. The precipitated phosphate of lime was collected on a filter, thoroughly washed and dried on bibulous paper.

Prover was of a nervous bilious temperament. Health generally good, though somewhat inclined to diarrhœa, especially when overloading stomach. Tongue, from early recollection, has been coated on the middle and dorsum, and scalp covered with dandruff. Oct. 7th, 1854.—Weather warm and clear. Took 4 gr. 1st. trit. at 12 m. 8th.—Took 5 gr. at 8 a.m. At 9 felt sharp pain under l. scapula, towards spine, continuing 10 m., followed by dull pain in l. shoulder-joint. At 12 m., took 5 gr. Weather wet and rainy. In 1½ h. dull pain in legs from knees to feet, continuing for ½ h. 4 p.m., feeling of great hunger, very unusual. Dull pain in head all d., increased towards n., and from 4 to 6 p.m. nausea. From 5.30 to 6 sharp pain at pit of stomach; nausea and pain in head increased therewith. Bread had bitter taste. Pain in stomach and head relieved by food. Weariness of legs, especially below knees, as if from severe labour. From 8 to 8.30, severe pain in front of r. ankle, followed by soreness about sheaths of tendons,—most on extending and flexing foot. At 6 p.m., smart itching vesicle on l. wrist; itching of l. cheek, nose, and chin. At 9, sharp pain in abdomen, around navel, with slight feeling of soreness. Aching in r. arm, in l. temple and shoulder-joint. lasting a short time. 9th.—Pain in r. wrist, with lameness as if bruised, at 7 a.m., lasting ½ h. Escape of considerable flatus, during whole forenoon. Increased appetite. 10th.—Took 5 gr. at 9 p.m. 11th, at 6 a.m., took 5 gr. more. From 12 m. to 9 p.m., frequent and profuse discharge of clear urine. 9 a.m., violent itching of l. wrist, with burning after scratching. The latter part of the n., and in m., dull pain as if from a bruise each side of dorsal spine. 12th.—Took 5 gr. at 6 a.m. Fluent coryza during forenoon, with dull pain in head from 11 to 12. 13th, 6 a.m., 6 gr., and 10 gr. at 9. Abundant emission of flatus. Appetite diminished in m., but good at noon. 3 p.m., severe pain in region of transverse colon, for ½ h. Dry hacking cough of a few m. duration. 5 p.m., dull pain in small spot in r. chest, near mammary gland, lasting ½ h. In m. after rising, a thin, copious fæcal discharge. An empty, sinking sensation at epigastrium, 7 p.m. 14th.—Diarrhœa early on rising. At 6 a.m., 8 gr. Emission of fœtid flatus during d.; tremulous motion of hands. 10 p.m., 10 gr. Pain on each side of lumbar and dorsal spine, as from a bruise, when

awakening on following m. Disappeared after exercise. 15th, 6 a.m. and 6 p.m., 8 gr. After movement of bowels, pain in rectum, extending up 5 or 6 in., lasting some 10 m. A sharp pain at about 6th rib of r. chest, a little to r. of mamma, worse on inspiration, lasting 10 m. 5 p.m., a like pain at a corresponding point of l. chest. Considerable soreness of r. chest when pressed upon; some, but less, in l. chest. Dull pain in l. arm between elbow and wrist. Yesterday, soreness of throat; to-day, tonsils, uvula, and pharynx red and swollen, with pain increased by swallowing. Pain in middle of abdomen during and after eating, lasting ½ h.; this pain abated after copious emission of fœtid flatus. ½ h. after, dull pain in epigastrium. At 6 p.m., sharp pain in tendons of inner hamstrings, when walking, lasting 20 m. For the last 2 d. obtuseness of intellect; difficulty of performing any ordinary intellectual operations; when composing would write throat for tonsils, red for swollen, &c., not clearly distinguishing the things under consideration. Dull pain in head at times through d. Urine has continued profuse, frequent, and watery, since 11th; but no unusual thirst. 16th, 6 a.m, took 6 gr. Soreness of muscles of back continues on getting up in m. M. cool and rainy. After dressing, seized with chills, and shivering, lasting ½ h., till after a brisk walk of half a mile; with chill, hacking cough and fluent coryza. After chill, dull pain in head; sharp pain in l. chest, about 7th rib, and to l. of mamma, followed by dull pain, felt more when inspiring deeply,—and this still continues (8 p.m.). Sharp pain for short time in region of spleen (8 p.m.). Diminution of sexual desire since commencement of proving. The pains above described in chest were felt very often through d. At 11.30 a.m., pain in r. arm from elbow to hand, with lameness of wrist, all lasting till 9 p.m. From 8 to 9 p.m., burning at stomach, and rising of water into mouth (water-brash). 9 p.m., took 8 gr. 17th.—Last n. dreams of travelling, of robbers; of an army of cats. Inflammation of throat continues; yesterday, moderate pain most of the time when swallowing; this m. pain more marked, and inflammation gradually increases. Sharp pain in region of heart, when making an inspiration (especially a deep one); dull pain in head. Involuntary sighing, at times, for last 3 d. 6 p.m., took 6 gr. Itching of edge of r. eyelid for a short time. Pain in region of heart, violent at times. Sharp pain in region of lumbar vertebræ and top of sacrum, lasting a short time, followed by soreness. Sharp pain between 4th and 5th l. ribs, a little to l. of heart, occurring frequently during forenoon; so sharp and severe as to cut off the breath at times. The sharp pain would last 10 or 15 m., leaving a soreness for a longer or shorter time, and then come on again. After breakfast much loud belching of wind; sharp pain in l. hypogastrium, lasting a short time. Pain in l. chest has been troublesome through afternoon; felt most during a deep inspiration, though not all the time present (*sic*). Sharp pain in r. chest, by turns, during same time. Dull pain in head with confusion; increased on stooping; worse at times. 9 p.m., took 8 gr. 18th.—Dryness of throat last n. Vivid dreams of travelling. No other new symptoms till 2 h. after dinner; then heartburn, lasting for some time. Mind is less dull and muddy than for several d. 19th.—

No medicine since last date; no new symptoms last n. Pains in chest troublesome, though not constant through d. Pain with soreness under l. scapula. Heartburn commencing about an h. after each meal, and lasting 1 h. Crampy pain in nape of neck, first on one side and then on other, lasting for a short time. Feeling of languor and haziness in e., and aversion to mental labour. 20th.—Frequent and urgent desire to urinate in forenoon; water pretty clear, and aggregate quantity large. From 12 m. to 5 p.m., no opportunity to pass urine. By 2 desire was urgent and pain in bladder considerable; pain kept increasing from 2 to 5, at which time it was very severe in bladder above pubes and in prostate gland and neck of bladder. The water passed in a feeble stream, occupying considerable time. After all had passed, considerable soreness of bladder, followed by frequent micturition. Though the urine had often been retained much longer without difficulty, it was evident that this group of troubles of the bladder arose from over-distension, and that the medicine affected the bladder only through the increased secretion of urine. Very sleepy in e.; slept sound for 10 h. in succession. Pains and soreness still felt about chest, though not so constantly as several d. ago. 21st.—No new symptoms till to-day an h. after dinner, when dull pain in stomach, with soreness on pressure, occurred. Burning itching of outer ear in e., lasting ½ h. Violent pain in r. toes and foot to instep, lasting ½ h. 22nd.—Diminution of aphrodisiac sense still continues, and whole function seems so weak as to be well-nigh removed, and has been so since 2nd d. of proving. The excitement reaches a low pitch, at which it culminates from slight cause,—simulating impotency. Urine more natural; but emitted flatus still very fœtid, and abundant. Pains in bowels still present, at times through d., lasting a few m., and generally followed by flatulent emissions, showing that pains were caused by flatus. Pains in stomach still come on about 1 h. after each meal, with soreness of stomach to pressure, and accompanied at times with loud belchings of empty tasteless flatus, which affords relief. Pains in bowels to-day most in region of ascending and transverse colon. Pains in chest still troublesome, passing from place to place; felt in central part of l. chest in front, and passing thence under l. scapula, but of a less acute character, more sore and aching. Pains still aggravated by deep inspiration. A sharp pain as though some round sharp instrument was pushing out through the lower end of sternum, for a short time, at about 12 m. Burning itching of outer ears when in a warm room, after riding in open air (which was not cold), and on putting hand to the ears was surprised to find they were not hot, though they were red. This burning has been troublesome all d. when indoors. Inclination to sigh continues and is marked; I find myself making frequent involuntary inspirations; this has been for a number of days. 23rd.—Symptoms diminished; but gloomy and discontented. Many of the above symptoms continued to recur for several d., but in a gradually diminished degree, till finally all disappeared. (*Trans. of Amer. Inst. of Hom.*, 1858.)

6. W. B. Chamberlain, M.D., of a sanguineous temperament and full habit, took 6 gr. of 1st trit. without knowing what he was

taking. Feeling in stomach as if distended by food. Dull, sleepy, oppressive pain, embracing whole head, but most in cerebellum. Slight jerking pain in r. knee-joint. Bilious, slimy, offensive fæcal evacuations, lumpy and covered with mucus, as many as 12 stools a d., with little pain. Seem to be more of a dysenteric character as the disease progresses. Stool in m. soon after rising, mostly bloody mucus. Slight pain low down in bowels. Frequent urging to stool with small discharges, attended with pain in head. Abdomen feels weak. Took last medicine on Friday, and the symptoms were at their height on following Sunday, and continued with gradual abatement till last of week. (*Ibid.*)

7. E. M. Jones, M.D., sanguine temperament and very active. Jan. 11th, 1855, weather cold and clear, took 3 gr. (? of pure substance) at 9 a.m. In ½ h. fulness and pressure in head, aggravated by pressure of hat, lasting at intervals all d. Not subject to headache. 12th. —Slept well all n., but during forenoon pain in all limbs, worse in gastrocnemii, as from a cold. Dull heavy feeling in head and sensation of fulness and repletion of stomach; soft stool, but otherwise natural. Took 4 gr.; biting stinging in small spot on l. natis. 4 p.m., biting stinging in front corner of l. nostril, succeeded by sneezing and lachrymation from l. eye; whole group disappeared within 30 m. 13th, 6 a.m., 4 gr. Returned to bed. Drawing pains in gastrocnemii. Soft pappy stool. Slight momentary headache in forehead over l. eye. Shock of pain in l. ear. Dull pressive frontal headache lasting all d. Sensation of faintness or emptiness in pharynx continued from last n. 14th.—Slept well. 7.30 a.m., 4 gr. Empty sensation in throat continues. 4 p.m., 4 gr. 15th.—Soft stool, but difficult of expulsion. 12 m., headache principally on l. side, pressive, occasionally throbbing, aggravated by stepping or quick motion. 16th.—Stool rather costive, expelled with difficulty. 17th, 7·30 a.m., 6 gr. In an h. biting stinging in front of corner of r. nostril, accompanied by slight sneezing and lachrymation (similar to that on the 12th). Slight flatulency. 4 p.m., 4 gr. 18th.—Before rising in m. sudden sharp cuttings or stitches in region of heart, cutting short the breath both in expiration and inspiration, continuing about 5 m. and then going off. Slight pains of same nature preventing a full breath, occasionally during d. 12 m., sharp shootings through temples, leaving a momentary soreness of r. temple after pain had gone. Shooting through perineum and into penis. Shooting through l. thigh. 19th.—Aching in outer side of r. knee in bed, soon followed by aching in ball of l. foot, relieved by motion (lasting about 10 m.). Restless sleep disturbed by dreams. Severe biting stinging in outer border of l. axilla, momentarily relieved by scratching. Heavy confused feeling in head as if about to ache. Sleepiness all d., with yellowness of complexion and sclerotica. 20th. —Restless sleep last n., disturbed by dreams, amorous and fearful. Severe lamed or bruised feeling in both nates. (Snowstorm yesterday.) Soreness of throat and fauces on swallowing. Throbbing headache behind l. ear (going off soon). 21st.—Aching in pulp of l. forefinger, sometimes extending up arm and giving it a sensation of weakness (continuing all d.). Pain in nates better. Headache has continued at

intervals throughout proving, generally being aggravated by eating. Yesterday and to-day pain has been a beating pain, extending through both parietal bones. Occasional aching pain in r. eyeball. Painfully hard costive stool. Frequent emission of fœtid flatulence. 22nd. —Pain in nates nearly gone. No headache this a.m., though a feeling of fulness and confusion continues, which has been an accompaniment of the headache all along. I have noticed too a great lack of definiteness in my memory, an inability to remember common symptoms of common remedies, and for 3 d. past rather less appetite than usual. Pain in l. forefinger to-day as yesterday, felt more when driving. Stool soft. 23rd.—Amorous dream with emission. 26th.—As it rained heavily on 22nd and I became thoroughly drenched and caught some cold, and was compelled to take medicine, I considered the provings vitiated and have not kept a record of symptoms. Have had rheumatic pains in shoulders and chest, &c., all of which might have been effects of cold. (*Ibid.*)

CALOTROPIS.

Calotropis gigantea, R. Br. Gigantic swallow-wort (source of Indian "mudar"). Nat. Ord., *Asclepiadaceæ*.

I. *Provings.*—1. *a.* Mr. E. B. IVATTS proved 1st dil. of tinct. prepared with 1 part of root to 8 of spirit. On e. of Sept. 23rd, 1872, began to take 10 drops, and continued same twice daily. On 27th, dull occipital headache from 11 a.m. till he went to bed at midnight, very bad at times during e. Reminded him of what he had suffered during a bilious attack; but he took his usual food well, and bowels were naturally open. Slept well; next m. headache gone, but head tight, which feeling passed off after breakfast. Stopped medicine for 2 d.; recommenced Oct. 1st, as before. On 13th, about 10.30 a.m., went out for walk. Shortly experienced a depressed tired feeling, which came on gradually. In ½ h. inclination to vomit and to faint. Sat on roadside and drank cold water; rested ½ h. and became better. Obtained carriage and drove 4 miles, feeling better, but very cold, so that he walked a mile beside vehicle to keep up circulation. Reached home 2.30 p.m., felt dizziness in head, no pain. Urinated frequently; eructations were constant. At 5 p.m. attempted to eat a biscuit, but felt faint, giddy, and inclined to vomit, so went to bed. Body was cold, with frequent chills passing up spine; at same time head and temples hot, and cheeks burning like fire. After a time, with rugs on bed, became very hot, and perspired; pulse quickened, but he was too ill to count it. Nausea, but no actual sickness till he sipped some strong coffee, when he vomited about a wine-glassful of yellow bile. This was at 5.30, and a lesser quantity was thrown up an h. later. Oppression at chest, and short breathing, but no uneasiness at heart; lips and throat very dry and parched; head painful, with throbbing and confusion. Sipped coffee as antidote all n.; got little or no sleep, tossing from side to side. Had felt slight pain when moving at inside of r. thigh just below groin 2 d. before; now felt back of thigh very sore and hard, so as to make turning irksome. Next m. convalescent, but weak; thigh sore, swollen and painful, so that he could not bend leg in walking, which gave him pain at every step. Travelled 120 miles by train. Toward bedtime chills came on again though he was close to fire; they continued in bed, running from feet up spine, movement of feet seemed to excite them. Alternating therewith were fits of perspiration (as was the case also on previous n.). Restless and feverish, with head and face hot; breath foul; pulse weak and thready on going to bed. Unable to sleep, took camphor, which brought relief and repose. Urine dark red, like homebrewed beer, and with strong smell, but no noticeable deposit after 12 h. standing. Cramp-like pains in centre of r. palm when grasping anything, lasting many d.; pain in wrist when moving it; slight soreness and swell-

ing of r. palate, paining on movement of jaws, lasting 2 d. 15th.—Well, save for thigh, which, however, is better. Diffused red blotches have come out on it, elevated and papular (these lasted 3 d.): veins of hands unusually small. Drank coffee and took several doses of camphor. 18th.—Better n.; thigh not so sore, could bend leg slightly, and walk about house a little; no pain when sitting or lying; when standing up to walk, tingling burning pain. Could go out next d., and symptoms gradually passed off.

b. Sept. 27th, 1873. Had been taking 1_x dil. for some d. Slight pain in l. foot, on movement or when bearing upon it; with tenderness, not superficial, but as if in tarsal bone.—28th. In m. found increased pain on movement, had to keep house. Very bad n., intermitting cramp-like pain even at rest, must keep foot moving about bed.—29th. Pain nearly gone by m. save when moving foot; took two doses of acon. 1_x. About 6 p.m. pain when foot was at rest, so severe for an h. that it brought tears to eyes. After coffee this subsided, and foot became as on 27th; instep slightly red and swollen, but not tender. Could not let foot touch ground, pain was so acute; but by putting foot down very gradually, and by degrees bringing weight of body to bear, could stand without pain, which returned on taking weight off again. During next 2 d. foot improved, but grew redder; coffee used as lotion sent redness away, but increased pain. On Oct. 1st r. foot began to pain, and on 2nd was the worse of the two. On 4th both were mending, and by 6th were quite well. (*Hom. World*, xiii, 16.)

2. The inspissated juice, root and bark have been extensively used in the East for their emetic, sudorific, (alterative) and purgative qualities. It has been used as a substitute for ipecacuanha. In doses of from 15 to 20 gr. the dried bark excites, in 20—60 m., full vomiting, with much nausea, and, in some cases, purging (PEREIRA, *op. cit.*, ii, 1, 660.)

CAMPHORA.

Concrete volatile oil of *Laurus Camphora*, L. Nat. Ord., *Lauraceæ*.

I. *Provings*.—1. HAHNEMANN, *Mat. Med. Pura*, vol. iv of original, vol. i of translation. Contains 105 symptoms from self, 147 from 4 fellow-provers, and 93 from 21 authors.

2. A gentleman swallowed for experiment ʒss dissolved in oil. In ½ h. head became confused so that he could not read; he staggered as he walked, and dark cloud seemed to come over his eyes; but upon going into open air symptoms began to abate, and in a few h. passed away. (WHYTT, *Works*, p. 646.)

3. Another, from same quantity, had similar head symptoms, but also after 2 h. nausea, with giddiness and dimness of vision, going on to active vomiting of bile coloured with blood; after which pulse became frequent, small, and feeble, with general debility, which continued some time, especially in legs. (GRIFFIN, *Diss. de Camph. viribus*, Edinb., 1765.)

4. Another took ℈ij. Had first burning at stomach with slackening of pulse; in 3 h. staggering and sopor, vertigo increasing at intervals, intoxication, disturbed mind, slight shuddering and pallor of face, finally sleep. (*Ibid.*)

5. ALEXANDER, having taken ℈j without effect, save slight reduction of pulse, took ℈ij (in syrup). In about 15 m. he began to feel unusual lassitude and depression of spirits, accompanied by frequent yawnings and stretchings, which increased for ¾ h., by which time they had grown extremely troublesome; pulse had now fallen from 77 to

67. Soon after this such giddiness came on that he could with difficulty cross room; on opening window and looking out, every object seemed in tumult and confusion. Feeling himself involved therein, and as if he would fall out, he staggered to bed, and tried to read, but could not take in meaning of book. Tumultuous motions now extended to letters, obliging him to desist; and another attempt at walking was still less successful. He swallowed a little broth, returned to bed, and increased confusion soon became insensibility. A pupil coming in at this time states that A— desired him to shut window, then threw himself backward on bed, then started up, sat on its side, and made ineffectual efforts to vomit; finally flung himself back again with dreadful shrieks, fell into strong convulsions, foamed at mouth, stared wildly, and endeavoured to lay hold of and tear everything within reach. Then followed calm, like fainting, only that colour was florid. A brother being sent for spoke to him, and he awoke as from a profound sleep, but without knowledge as to where he was. Pulse was 100. Feeling very warm and tremulous, he rose, threw himself on floor, and had face and hands bathed in cold water. Then, drinking freely of warm water, he vomited, bringing up greater part of C. taken. Knowledge of things and persons now gradually returned, but as if he became acquainted with them for the first time. A pretty severe headache came on, and giddiness, singing in ears, heat and tremor continued, though in less degree. Thermometer on stomach rose 2° above blood heat. Slept soundly all n.; next d. had a very costive stool, and felt great soreness and rigidity all over body, which went off in a few d. more. (*Experimental Essays*, 1768.)

6. Enders, Dec. 24th, 1821, at 9 a.m., took 4 dr. of alcoholic solution (1 gr. in 8 drops). Towards noon this caused dull headache spreading from forehead towards temples, lasting over 1 h., feeling of being out of spirits, and in following n. heavy sleep. On following d. took 8 dr. Headache was renewed, and head felt quite muddled. Headache increased gradually, reaching its greatest intensity in e., accompanied at times by fleeting stitches in both temporal regions and in orbits; relieved p.m. by walking in open air. Felt disinclined for all exertion during whole d. Skin acted more freely, and constant thirst urged him to drink frequently. After 12 dr. felt within a few m. reeling as if tipsy. After 3 h. felt same headache as before, but to a less extent. Action of skin was increased, and dryness of mouth lasting all d. obliged him to drink freely. During e. pulse was slightly excited. Dec. 27th, 8.30 a.m., took 16 dr. After ¼ h. was seized with giddiness so that he was obliged to sit for several m. in order to escape falling. After 2 h. felt same headache beginning in frontal region, spreading later as far as occiput, lasting 3 h. Perspired freely during d., dryness in mouth being considerable. After 20 dr. same symptoms recurred, except that this time it was rather confusion than pain in head, and lasting several h. Dose of 28 dr. caused same symptoms. (Jörg, *Materialien.*)

7. Meurer, Dec. 24th, 1821, 8.30 a.m., took 4 dr. After ½ h. felt somewhat lively, excitement not followed by perceptible depression. After 8 dr., in addition to above symptom, felt pressing, though not

actually painful sensation in forehead, changing after 1 h. to confusion of head, lasting till noon, and accompanied (1 h. after dose) by frequent deep yawning; 12 dr. caused feeling of warmth, first in organs of deglutition, then in stomach, and later in whole body, and after a few m. slight frontal headache, becoming gradually more acute and accompanied by stabbing, proceeding apparently from the temporal bone and recurring every 5 m. Pulse was for over 1 h. in an excited state, beating 10 to 15 beats per m. more than usual; headache with dry mouth and constant thirst lasted 6 h., when stabbing disappeared, and in place of actual pain confusion of head came on lasting some h. After 9 h. prover fell asleep and slept heavily for 3 h. Dose of 16 dr. caused same symptoms, though not more severely, and without stabbing pain; 28 dr. caused feeling of warmth to greater degree, and after 5 m. stabbing in stomach lasting 1 m. Head soon became confused and pulse quickened, and after 3 h. somnolence and muddled condition of head came on, last moderating towards late e. (*Ibid.*)

8. Heisterbergk, Aug. 29th, 1823, 8 a.m., took 10 gr. in substance, rubbed up with same quantity of sugar of milk. After 10 m. remarked heat of countenance, with suffusion; confusion of head, approaching, after a few moments, to vertigo; and trembling of hands, especially evident in writing. This condition lasted ½ h. After 12 gr. similar symptoms appeared. (*Ibid.*)

9. Lippert, on Aug. 9th, at 8 a.m., took 2 gr. rubbed up with ℈j of magnesia. Urine passed after this was at first clear, but deposited on standing thick whitish flocculent sediment; 3 gr. caused same symptoms, and also three slight evacuations; more deposit was present in urine. After 4 gr., in addition to same symptoms there was considerable sweat, although prover moved about very little, and towards midday there was dull frontal headache, a symptom which appeared constantly after subsequent doses. After 5 gr., besides previous symptoms, remarkable change in circulation came on, pulse after 5 h. becoming large, bounding, and hard, and at times irregular, remaining in this condition several h. After 6 gr. giddiness and confusion of head developed themselves, accompanied by feeling of emptiness of head. Urine was somewhat more scanty than from previous doses. (*Ibid.*)

10. Pienitz took ½ gr. on Aug. 8th, 1823, at 8 a.m. After 4 h. noticed full pulse and pressing pain behind and above each orbit, lasting ½ h. After 1 gr. noticed (after 2 h.) dryness of mouth, belchings, and quickened pulse. Next d. took 2 gr. This was followed by dryness in mouth lasting till e., much thirst, after 1 h. pressing pain behind both orbits lasting ½ h.; after 2 h. pulse accelerated a few beats in m., lasting 2½ h. (*Ibid.*)

11. Seyffert, after 5 gr., fasting, on Aug. 7th, at 8 a.m., noticed transient confusion of head. On 12th, at 8 a.m., took 7 gr. After 1 h. felt confusion of head, going on to actual vertigo, and lasting over 1 h. At noon giddiness returned suddenly, and was accompanied with epistaxis after stooping for 3 m. over some mechanical occupation. Similar effects followed doses of 6, 7, and 8 gr., epistaxis alone excepted. (*Ibid.*)

12. Güntz took, July 8th, 8 a.m., 1½ gr. in pill form. After 1 h.

had feeling in epigastric region as if abdominal cavity were too full at this spot, and as if diaphragm were pressed upwards thereby. This feeling was accompanied by oppression of respiration, and lasted till noon. Similar effects, but lasting somewhat longer, followed dose of 2 gr., and, in addition, pulse was quickened by several beats and skin perspired more than usual. After 3 gr. same effects followed, accompanied after 1 h. by slight pressure in frontal region. (*Ibid.*)

13. KNESCHKE, July 6th, at 5 p.m., took ½ gr. rubbed up with 2 gr. of magnesia. After ¼ h. felt slight, but not troublesome confusion of head, as if from drinking several glasses of wine, lasting ½ h. Next d. took 1 gr. in pill, which he chewed thoroughly before swallowing. After 10 m. felt congestion towards head causing slight confusion of head, especially of forehead, lasting 1 h. but not passing off entirely for 4 h. After 1 h. pulse was quickened several beats; this lasted 1 h. Similar effects followed 1½ gr. taken in same manner. After 2 gr. felt same effects, accompanied after 5 m. by pressure in forehead and temple, pulse being meanwhile fuller and quicker, lasting 2 h. After 3 gr., in addition to foregoing symptoms, felt during 1st h. more lively than usual; effects only disappeared entirely after 9 h. (*Ibid.*)

14. OTTO, on July 5th, at 7.30 a.m., took ½ gr. in crude form. After 8 m. noticed increased heat of skin without sweat; pulse being fuller and stronger but not quickened. After 1 gr. noticed (after ½ h.) pulse was stronger and quicker than usual; this was followed by excited condition of brain with rush of blood toward head and increased warmth of countenance, especially in cheeks; felt much excited but not giddy; everything seemed to move more quickly; what he read he understood more quickly and easily; felt in contented mood. Later, felt some pain in head and eyes. These symptoms lasted altogether 1½ h. After 2 gr. noticed same effects upon skin and pulse, but without congestion of head and increased sensibility (on this occasion he moved about freely all d. in open air). After 3 gr. felt increased warmth in region of stomach, spreading gradually over whole body and followed by general moderate sweating. Only brain symptom was feeling of exceptional cheerfulness and liveliness. Similar effects followed 4 gr. After dose of 5 gr., in addition to general warmth and sweating, noticed shortly after taking it considerable confusion of head, passing on to giddiness and actual headache (as from a mild debauch) ceasing after ¾ h. on walking in open air; pulse meanwhile was slightly quicker, fuller, and stronger than usual. (*Ibid.*)

15. SIEBENHAAR, on July 5th, at 5 p.m., took 1 gr. After ¼ h. found pulse become quicker, fuller, and stronger than usual, and heat of skin increased, chiefly on head and particularly on forehead and temples; symptoms vanished after 1 h. After 1½ gr. noticed same symptoms, with, in addition, heaviness in frontal region and slight rumbling in bowels. After doses of 2 and 3 gr. same effects occurred (except rumbling in bowels), but with greater intensity. (*Ibid.*)

16. JÖRG took ½ gr. rubbed up with 5 gr. of sugar on July 5th at 10 a.m.; for 2 h. felt perceptible movements in intestines followed by frequent passage downwards of foul-smelling flatus. In following n., between 1 and 2 a.m., awoke with acute pressing pain in region of

cœliac ganglion, pain causing him to perspire freely for 1 h. After this it ceased gradually. During this attack pulse was five to six beats quicker, but rather soft than hard. On rising there was still very slight dull pain in same region; during d. suffered off and on with pressing pains in head, sometimes in forehead, at others in sides. Urine both days appeared more concentrated than usual. Soon after 1 gr., in substance, felt increased warmth in stomach, spreading imperceptibly over whole body, increased action of skin, most after 2 h., and quickened circulation. After 1½ h. dryness of mouth and somewhat troublesome thirst. After 2 h. felt as if blood and heat ascended somewhat towards head. After 5 h., on sitting down to write, noticed that he trembled, especially in hands. After another ½ h. hands and arms became steady again. After 7 h. was troubled with pain in region of cœliac ganglion, lasting 2 h. Next d. took 1½ gr., effects of which were slighter and appeared to pass off within 1 h. After 5 h., however, perceived a sharp, scraping, and somewhat burning feeling wandering about abdomen, which came and went for ½ h., when it changed to above-mentioned troublesome pain in region of cœliac ganglion, and after another 1½ h. became so acute that sweat rolled off him; now and then a slight rigor occurred, and it felt to him as if very acute inflammation of several viscera were starting from root of cœliac axis or cœliac ganglion. Irritation now seemed to pass upwards and caused him to cough repeatedly, with painful sensation on inner surface of spinal column from diaphragm upwards. Circulation at same time became quickened by about 10 beats per m. (pulse small and soft), and accompanied by singing in head. Ten h. after dose symptoms began to abate, but he woke up several times in n. with dull sensations in region of cœliac ganglion. Bowels remained constipated. On 13th, at 8 a.m., took 2 gr., which he chewed and then swallowed. Heat and sweating came on as before and lasted more or less all forenoon. From 9 till 10 o'clock, whilst perspiring, felt slight cutting in region of navel, passage of flatus, urging to stool and to micturition, irritation in region of kidneys and excitement of genitals (feeling as if rectum, bladder, and genitals must be evacuated all at one time, and as if there were general turgescence of that part of body where the three great canals emerge). This urging lasted hardly ½ h., but in so far as genitals were concerned, recurred between 12 and 1, lasting ¼ h. Added to this, between 12 and 1, irritation and movements in bowels came on, sometimes changing to actual trembling. After this passed off, at 11 a.m., pressing and stretching pain came on below diaphragm, extending upwards and downwards, passing on in ½ h. to pain in region of cœliac ganglion, moderate till 7, and then gradually increasing until 8.30, when it began to diminish, and by 10.30 had passed off. During afternoon, slight cutting pains were felt in abdomen, without diarrhœa, but with constant passing of foul, pungent flatus. Stools were of thinner consistence and smaller quantity than usual. Urine appeared very concentrated and had pungent odour (not of drug). About 10.30, slight muddled feeling, especially in fore part of head, came on, with slight burning in eyelids. In following n. felt constant thirst and slept badly. (*Ibid.*)

17. LEMBKE, June 14th, 8 p.m., 15 dr. tinct. Pulse before taking it 70. After 10 m. internal coldness in lumbar and sacral regions, increased by walking, warm feeling in stomach, slight discharge of flatus; forehead hot; heaviness of head, chiefly in crown; pupils disposed to dilate quickly; pressure in l. knee, over the r., in leg inferiorly; hands warm; severe pressure in r. of crown, persistent; then obtuse pressure deep in vertex, with increased heat of scalp in crown, and feeling of weight of head. Occasional internal coldness in lumbar region, pupils dilated, discharge of much flatus; when walking pressure deep in r. thigh; drawing in l. calf; pressure on r. side of forehead; frequent eructation of air; pressure on l. sole; fine shooting in l. calf. 8.30 p.m., bruised pain in lower part of l. forearm. Stitches in skin of r. fourth finger, on the side of the last joint. Frequent eructations of air; tired pain in r. knee with great feeling of heat in it; thereafter commencing numbness in r. toes, followed by a feeling of inward coldness from knee to foot while sitting; drawing-shooting in second joint of l. index; pressure in middle of l. calf while walking and sitting; inward chill betwixt scapulæ; inward coldness through r. leg, as if cold air blew upon it. 9 p.m., pressure in l. forehead. Drawing in l. thumb-ball; tired feeling in l. arm; weight and pressure in both knees when seated, with internal feeling of coldness in them, as if a cold fluid ran down from knee; walking increases the chilliness; the hands, too, become cold; the air of the room when drawn through the nostrils feels cool; yawning when walking, eructation of air. 9.15 p.m., cold hands and feet; drawing in carious lower molars when walking; drawing in decayed upper incisors; pressing in l. leg and r. toes. 10.30 p.m., shooting in both sides of tendo Achillis when walking; from r. elbow to hand tired feeling; a cup of tea removed the symptoms. Sleep sounder than usual.—15th. On waking at 5.30 a.m., feeling of heat all over skin, as of commencing sweat, on which he fell asleep. On rising some heaviness in forehead.—21st, 8 p.m., 15 dr. spirit of camphor in eau sucrée. After some m. chilliness in back, shooting in ball of l. foot; drawing in l. toes and ball of r. foot; the cold feeling in back increases as if a cold air blew on back; pressure in r. knee; heaviness of l. arm; weariness in legs, especially knees, when sitting; then in l. arm from shoulder to wrist, relieved by moving arm; when the arm is at rest the pressive compressive pain recommences; pressure and weight above forehead; the same pain in r. arm; slight scraping in throat, causing short cough; eructation with camphor taste; great drawing in r. foot; cold feeling in r. knee to foot when sitting. 8.30 a.m., feeling of heat, inward shaking from nape to between scapulæ, extending as pressure into limbs, with heat and sweat of forehead, when sitting; drawing in r. sole; pressure in occiput, r. forearm and ankles; jerking pressure in head above l. ear; crawling, creeping feeling over l. side of neck and l. clavicle; feeling of heat rising from nape to head, with intermediate cold feeling, the skin warm slightly sweating, forehead moist, pulse a little quickened; sudden boring on r. of nose for a moment; severe persistent pressive pain in flexor side of l. wrist; sweat on back and forehead when sitting; when arms and legs are at rest, pressure and drawing on inner side of both

legs to ankle, and still more on inner side of arms; movement reli
but returns when at rest. 9 a.m., smarting in eyelids, also at
p.m. When walking, pressure in nape, forehead heavy; eructatic
gas; much flatus discharged; stitches deep in l. ear; weight and
in sinciput, aggravated by walking, also pain in legs and ankles;
ing in l. nostril, sneezing; pressure in sinciput in several parts;
sitting, prickling through legs; great pressure in l. ankle and abo
knee. 10 a.m., weight in sinciput; severe bruised pain in l.
and r. knee when sitting; when walking, pressure in ankles,
when sitting in knees; slept soundly.—22nd, m., urine less
usual. Forenoon, weight in forehead, pressure in r. leg; smartin
tip of tongue like pepper.—24th, 8.30 a.m., 5 dr. After som
increased warmth in nape, head, face, which are hot to touch;
warmer, palms moist, warmth in back; pupils contracted, eyes
tive to light; pressure in toes; eructation of air; cold feeling in
and toes; all these symptoms when sitting and reading; weigh
head, pressure in l. knee; hands sweat profusely; small black
hover before eyes; pressure in r. ankle externally and r. knee;
feeling in r. wrist with drawing in thumb and stiff feeling in fing
increase of cold feeling in r. leg, like cold wind blowing on it; dra
in instep. 9 a.m., hands cool, blood-vessels contracted; weigh
head; pupils contracted; muscæ volitantes; when standing
walking, the r. leg, especially the knee, is painful; much flatus;
cold, cold feeling in head; pain in back on stooping; singing in l.
repeated sneezing; smarting in eyelids; when walking alternate c
ness and heat in sacrum; pain in r. knee, drawing in l. tibia, in
cles of upper arm; weariness in sacrum; later pressure in l. knee
tibia, drawing in r. angle of lower jaw, shooting in chin; several
during d. when walking drawing in l. tibia.—29th, 8 a.m., 1
Immediately heat in head, especially in crown, in ears; immedi
thereafter burning in face, drawing in l. toes repeatedly; the he
face and head increases, face becomes red, great burning in
drawing in l. arm, veins distended, hands hot, eyes sensitive to
black spots hover before them; pulse slightly quickened; gnawin
muscles on inner side of l. upper arm; coldness in all r. leg to
(pressure in l. ankle) like a stream of cold air going down through
to foot, also when standing; bruised pain in r. elbow, wrist,
fingers; heaviness of head. 8.30 a.m., when walking heavines
whole r. leg; heat in face and head declines, but more heavine
sinciput; when sitting always coldness in r. leg, when walking w
in it; pressure in muscles above r. elbow; frequent eructation ta
of camphor; drawing in l. palm, pressure in l. knee, drawing in
muscles and l. leg to foot, when sitting; drawing in head over
pressure in sinciput; repeated warm feeling in stomach; drawin
l. side of nose, on r. shoulder, then severe pressure on shoulder; dra
in r. instep when walking, in skin above and below l. clavicle; br
pain in both shoulders; pulse fuller, larger; severe pain in back a
slight tendency to perspire when moving at 2 p.m. At 5 p.m.
feeling of r. leg when sitting, repeatedly; burning on border of ton
also on palate; tearing in l. instep, in l. elbow, on r. tibia; br

pain in l. arm, especially shoulder-joint. 9 p.m., in skin of root of nose some pricking or crawling from dorsum to tip of nose, repeatedly, so that he must rub the nose, when it goes off, but soon returns; at n. emission without dream.—30th. More towards e. drawing in l. tibia and borders of foot; drawing in l. side of nape, towards l. shoulder, when at rest and when moving; stool delayed and very hard. 10 p.m., drawing in r. tibia and pressure in l. forehead.—July 25th, 3.30 p.m., 30 dr. After some m. heat in occiput, heaviness of knees, pressure in forehead, hot feeling through back, skin of body and face moist, great pressure in ankles and knees; blood-vessels much distended, pupils contracted, everything appears brighter; pulse 80. Drawing in instep, heaviness in arms, hands, and legs; hot feeling streams through back and into legs; pressive pain in r. elbow; drawing between l. fingers; heat in face and head; repeated flushes of heat in back, with general warm sweat; tearing behind and above ears; numb feeling in r. leg; vertigo when sitting—at 4.30 p.m. Severe shooting in r. big toe; drawing on l. side of nape to shoulder; black spots hover before eyes, with sensation of increased brightness; still heat and general perspiration; pulse 80; burning in borders of lids; shooting in calves; drawing in toes; shooting under l. knee, in l. cheek; numbness of r. foot; drawing about l. ankle; frequent eructation—at 5 p.m. Weight in sinciput, pressure in l. shoulder, worse when raising arm; heat and perspiration gone; compression in ankles, pressure in r. hip-joint. 5.30 p.m., return of heat in back, then through whole body and in face, with moist skin. All these symptoms when seated. When walking prickling in l. toe tips, then in r.; much flatus; pressure in r. shoulder; drawing in toes, drawing pain in skin of nape and below both zygomatic processes; pressure in toes; stiffness of nape; burning and shooting in r. sole; discharge of flatus and eructation of wind continued till 7.30 p.m. At 6 p.m., tearing in l. groin; burning in l. eyelids; drawing in r. side of forehead; boring in r. zygoma; when walking painful feeling of stiffness in outer side of r. thigh. The pain in nape persists, especially in region of 5th, 6th, and 7th cervical vertebræ, aggravated by moving head, relieved by pressure of hand. 7 p.m., tearing in instep when sitting; pressure in l. wrist, then in l. ankle; so weary and drowsy he must go to bed; sleep restless.—26th, m., tearing in r. hand; during d. pressure in shoulders and knees, also when walking; drawing in toes and inner side of l. upper arm, in l. forearm, in hands, betwixt fingers. The pains worst in e. (*N. Z. f. h. K.*, x, 161, 169.)

18. Dr. Norton, March 6th, 1851, took 10 dr. of tinct. (probably 1 in 6) at bedtime. In n. unusual sexual ardour, with continued delusions respecting object of embrace. 7th.—At 7.30 a.m., 20 dr. Two h. after calm opiate effect on mind and brain. At 10 p.m., repeated dose, without appreciable effect. 8th.—At 7.30 a.m. took same; in about 2 h. after slight confusion of head. Once, for a few m., burning in urethra as from cantharides. 9th.—At 9 a.m., 20 dr.; in 2 h. stupefying feeling as after laudanum; also indifference as to how the world uses one. Effects went off in 2 or 3 h. 10th.—At 8 a.m., 40 dr. No perceptible effects save intellectual dulness; also

soreness or tense stiff feeling in eyes and lids all d. (*Brit. Journ. of Hom.*, xvii, 464.)

19. *a.* PURKINJE, after taking a dose of 12 gr., in bed and fasting, experienced heartburn, pleasant and moist warmth over whole body, general and agreeable excitement of nervous system, which was particularly distinct in skin and muscles, peculiar excitement of brain, and, above all, feeling of inebriation. These feelings continued 1½ h., and were dissipated by customary occupations of d. They were not followed by any sense of lassitude.

b. Same took ʒij in like manner. First effect was to excite such restlessness that he could not remain in bed. There was a singular sense of lightness in limbs; all movements were executed with unusual ease; in walking legs were raised beyond ordinary height, without their inherent vigour being increased or diminished. Skin and muscles showed diminished susceptibility to external impressions; he was unable to perform any literary work for a crowd of ideas rushing upon him; one thought quickly followed another, but he was unable to fix attention upon any of them; he lost consciousness of his personality, thoughts chasing each other more and more furiously. After vomiting, consciousness returned, but distracted condition of mind, forgetfulness and crowding of ideas continued; time seemed very long to him, and full of events which he was unable to recollect. This continued 3 h., during which time he could with an effort apply himself to work. But impressions received by sense of sight were evanescent (those by hearing lasting longer); finally, an oppressive warmth spread through head and body, he lost consciousness and fell down. Face was flushed; and for ½ h. he breathed slowly and remained unconscious, exhibiting slight convulsive movements. On waking, he had to make persistent effort to recover consciousness of his personality and a knowledge of his surroundings; but he experienced no exhaustion, and there were no after-effects. (RICHTER, *Spec. Ther.*, Suppl. Bd., p. 442.)

20. An adult man, in good health, inhaled vapour of C. (moistened with alcohol) for some h. to check a catarrh. After a time he felt himself overpowered with general lassitude. Head became heavy, stupid, and painful; vision disordered, and there was shivering at intervals. Soon he was unable to stand; faintings and nausea supervened, and physician found him in state of extreme prostration, pale, hands cold, trembling, with tendency to slight faintings, slow, soft pulse, quick and irregular breathing, intense headache and singing in ears. He soon recovered, and urine exhaled very marked odour of C. (*Journ. de Chim. Méd.*, 1860, p. 466.)

21. A woman, æt. 37, with chronic ovarian pain and dysmenorrhœa, but otherwise normal, took C. for 4 months.

a. For 1st week 2 gr. were taken in solution daily on an empty stomach. She stated that the medicine did not affect her in any way; but observation after first ingestion found pulse reduced from 72 to 60.

b. For next fortnight 4 gr. daily in same way. She described dose as producing sense of warmth through whole body, especially in chest and mammæ.

c. During 4th and 5th weeks, 5 gr. m. and e. Decided giddiness

after each dose, coming on after about 20 m., and lasting 10 m. On two occasions it was considerable.

d. During 6th week 10 gr. daily. First dose, taken 2½ h. after breakfast, made her very giddy and powerless in ½ h., feeling passing off in 10 m. Later dose, taken before breakfast, produced in 10 m. such giddiness that she could hardly walk across room. Feeling continued at maximum for 15 m., then declined, but did not pass away entirely till after breakfast, 1¾ h. after dose.

e. For next 3 weeks 15 gr. every 3rd m. before breakfast. Giddiness came on in 5—15 m., lasted at maximum 15 m., declining through another 1¼. No other effect, but there was a little confusion when she looked up from sewing.

f. After 20 gr. there was also tremulousness of hands and slight somnolency. In 2½ h. she was still a little shaky and unsteady in her actions and felt languid and sleepy; pulse had fallen from 72 to 66.

g. After 30 gr. same symptoms; pulse falling from 70 to 60.

h. For last weeks of the time she took 10 gr. twice or three times a d. During 16th week she seemed languid and lethargic, and felt so, legs being weak and shaky; twice she felt very faint, and constantly experienced heaviness and dulness of head, which seemed bewildered. There was no dimness of sight, but vision was "flickering and weak;" pulse natural, breathing 23 one m., the next 19, with one long-drawn inspiration. No other functions were affected. (HARLEY, *Pract.*, ix, 215.)

22. A youth of 17 was treated by C. for seminal emissions, in doses increasing from 4 to 30 gr. Same giddiness, internal heat and reduction of pulse were observed. On one occasion 35 gr. were taken after walking, when pulse was 86. Giddiness "over back and top of eyes" came on in 15 m. and continued at maximum for 20 m. In 35 m. pulse 76, full and bounding; cheeks hot and flushed, with a little somnolency, and sensation of warmth over upper chest. After 2 h. pulse 76, regular, and of usual force and volume; somnolency and flushing gone, but he still felt heavy about eyes. He walked home, but experienced slight giddiness on reaching home, lasting ½ h. (*Ibid.*)

23. *a.* Man took 10 gr. In 10 m. pulse went down to 64; feeling at stomach of coldness and acridity; in 20 m. pulse 60, feeling at stomach as produced by hunger. An h. after taking C. cold at stomach still continued, but there was a feeling of general wellbeing. In 3 h. pulse 74, its normal frequency, and all symptoms subsided.

b. Again, 20 gr. produced similar symptoms, but increased in proportion to the larger dose.

c. A third experiment with 36 gr. gave following results:—Immediately feeling of coldness penetrating whole trunk, and especially felt at stomach and œsophagus. Feeling of comfort such as experienced on taking an ice when heated; in ½ h. pulse went down from 72 to 60. Slight feeling of exhaustion; coldness continues, although in the digestive canal there commences a slight degree of acridity and biting. The widespread feeling of cold continues very marked. Undoubted aphrodisiac action. Coldness and feeling of wellbeing increased by

walking, but the lightness and power of flight found in some experiences were not felt. Two h. after taking C. feeling of coldness in alimentary canal replaced by one of slight and pleasant warmth. In 3 h. all effects disappeared. The breath was impregnated with C. for a short time after taking it, but not the perspiration or urine. (TROUSSEAU and PIDOUX, *op. cit.*, *sub voce.*)

24. *a.* Dr. SCUDERY, of Messina, took from 10 to 15 gr. of C. In 15 m. pulse became more frequent and vibratory, and this lasted 2 h., then cheeks became red and there was an access of fever; skin became dry; pain in head with vertigo; eyes lustrous and affected by light; feeling of contraction at chest and breath smelling of C. No burning or weight at stomach, but, on the contrary, feeling of strength and comfort there. At times inclination to pass water, and urine had odour of C. In 4 h. these symptoms disappeared and were succeeded at n. by amorous dreams, erections, and pollutions. Urine scanty and burning; constipation.

b. Scudery repeated proving on five different occasions with similar results, only sometimes fever was more marked and lasted longer, especially when he increased the dose to 40 gr.

c. Dr. PASQUALI, of Rome, took 10 gr. with sugar and gum arabic. His pulse became more frequent and vibrating; in 15 m. slight frontal headache, which increased for 30 m.; followed by vertigo, injection of conjunctiva, and feeling of comfort at stomach. Headache lasted all the next d.

d. Dr. MEZZETTI took 8 gr. His pulse was at first 66, feeling of heat at stomach; 1½ h. after pulse fuller and more vibrating; head heavy and painful, ideas confused. The proving, repeated some d. after, gave similar results, with addition of frequent emission of burning urine. At n. he had a little delirium, dry tongue, and thirst. (*Journal du Progrès des Sciences Médicales*, xvii, 78.)

25. A gentleman who had had nocturnal emissions in excess of health, and had taken a melancholy religious turn, took one n. on going to bed some pieces of camphor. He lay down, but had immediately indescribable discomfort and nausea; he could not remain lying down; he felt a kind of madness, and alternately thought he was dead and alive. He tossed much about. The external world seemed to have vanished, he imagined he was in quite another world, in a great space, and that he was the only one remaining of all the world,—that he was in fact the sole survivor of all created things. He felt assured of eternal damnation. He thought he was the evil demon of the God-forsaken earth. All comfort and all hope were lost, God Himself had ceased to exist. He felt unspeakably miserable, he suffered the most intense mental agony. He was the evil spirit of an empty world, hopeless and not to be consoled, his heart broken by unexampled sorrows. He rose suddenly from bed, rushed to the window and tore it open. It was a fine moonlight night, but this only increased his torture. The heavens seemed to be transparent and lifeless, the earth to lie in a dull gloaming. The sense of touch was lost, the eyes protruded. He felt inclined to throw himself from the window in order to float through his demoniac kingdom, but a slight glimmer of sense restrained him. His eyes were dry, his hand could not grasp anything. He endeavoured to pray; the words came out of chest as if it were a cracked vessel. He was seized with affright and wished to run away. He cried out: "I am really dead and gone to hell for eternity, and yet I confessed this morning and no sin weighs upon me." He began to have doubts as to the soundness of his dogmatic views, though he had always been a firm believer. He remembered he had a stomachic syrup in his cupboard. He stretched out his hand to get it, but was horrified to discover that he had no feeling; his whole body seemed insensible,

and he had no feeling of internal warmth. He scratched the skin of his face and hands, but felt nothing. He lighted a candle and felt better, but on going back to bed he again felt the wish to throw himself out of window. He got up and rushed out of the house and fell down near a neighbour's door with a loud cry. The neighbours came out and administered restoratives. He could not bear to be left an instant alone. They gave him a cup of hot tea, which seemed cold to him. He then vomited and then felt cold. They laid him in bed and he fell asleep. Next m. the horrible delusions would come unless he made a strenuous effort to suppress them. All these things did not occur in a half sleep—on the contrary, he was very wideawake and remembers the slightest incident. Now, though a considerable time has elapsed, the horrors of that time recur when he is alone, and he feels as though his soul were freed from its material dwelling. If he drinks tea or coffee the same visions and delusions occur. He has often nightmare, and cannot sleep when the delusions are on him. His disposition is very irritable and morose, with tendency to despair and suicide. During d. he is pretty quiet, but at n. and when alone he is tortured by his hallucinations. (*Hom. Viertelj*, i, 231. Communicated by the patient himself.)

II. *Poisonings.*—1. M—, of thin habit and clear complexion, subject to slight nervous affections, but otherwise healthy, had for some d. spasmodic constriction of sphincter ani. An enema of 30 gr. of C. was prescribed. In a few m. taste of C. in throat; in 15 m. (enema still retained) feeling of unrest and general illness, which increased. He jumped out of bed, felt lighter than usual, seemed scarcely to touch the floor as he walked but to glide over it. He sought assistance, his walk being uncertain and staggering; he gesticulated much and kept asking for wine. Face pale, eyes sunken, features altered. Feeling of coldness over entire skin, with sensation of numbness at hairy scalp, and especially at nape of neck. Skin cool and moist in parts, pulse weak and contracted. Tendency to faint; mind especially affected, being in a state of great inquietude, but without apprehension of danger. He was emotional and shed tears, which surprised him, as there was no cause for them, and yet he could not prevent them. This state continued about 30 m. and gradually wore off. A glass of wine helped to restore him. He exhaled an odour of C. all d. (ORFILA, 4th ed., ii, 495.)

2. Man, æt. 39, ate about 35 gr. of powdered C. He had a fit of epilepsy, lasting about 10 m., followed by an extraordinary state of exhaustion. Extremities were cold, surface covered with clammy sweat; pulse frequent and scarcely perceptible; pupils dilated. When roused he had scarcely power to articulate. There was occasional suppression of urine for 3 months afterwards. [Had once had epileptic fit during intoxication.] (*Lancet*, 1842-3, i, 300.)

3. A young lady swallowed piece about size of marble. Had a most vacant expression of countenance, eyes wandering about room, speechless and powerless, soon had violent epileptic fit, lasting 2 m. Went into state of stupor, and in about ½ h. vomited freely, matter ejected smelling most strongly of C. In m. complained of violent pain in head and chest; mouth was slightly distorted; taste and smell of C. still present, and most disagreeable. (*Ibid.*, 1857, i, 384.)

4. Lad, æt. 13, ate 2 pieces of C., about 120 gr. After 4 h. was observed to do something which elicited question, "Are you dreaming?" No reply was given, and it was noticed that something was wrong with boy; eyes were fixed in a stare, and he stood motionless and unconscious. His brother took him up to carry him to adjoining room,

when he immediately became convulsed and perfectly rigid, with head and legs bent back, so that he could only be placed on side. Convulsions increased till surface from head to shoulders became purple, and pulse decreased rapidly till it could not be felt. Body then lost rigidity, and was apparently lifeless; but in about 10 seconds pulse could again be felt, convulsions returned, and he foamed at mouth. Application of cold water brought him round in about 4 m.; violent vomiting then ensued; he was hysterical for a time, but within an h. was so far recovered that he could be put to bed. (*New Remedies*, 1876, p. 85: from Allen.)

5. Dr. BECK found a well-grown child, æt. 3, lying on his mother's lap in strong convulsions. Scalp was intensely hot; extremities cold; abdomen retracted, and patient apparently moribund. Breath smelt of C., and it was ascertained that child had obtained a fragment of some in house 7-8 h. previously. A whisky enema and pounded ice to head restored child in 2½ h. (*St. Louis Med. and Surg. Journ.*, May, 1862.)

6. A young man, otherwise healthy, took for sleeplessness while suffering from a coryza about 20 gr. of C. in small pieces. He soon felt chilly, and a state like unconsciousness came on; when he recovered he felt as if crazy. This repeated itself several times, till an emetic removed a quantity of C. He still felt sensation of coldness from stomach down legs, hands appeared to him paralysed, and all that he looked at trembled. After a few d. rest he returned to his work, but after 3 weeks lateral headaches, globus, loss of memory, becoming easily frightened, palpitations, hallucinations, alternate weeping and laughing, pollutions without sexual ideas, and state of somnambulism set in; and some time passed before he felt well again. (PLANAT, *Med. Psychol.*, Bruxelles, March, 1885.)

7. Dr. EICHORN had powdered some C. with sugar to relieve a cold in head, and in course of 3 h. took a teaspoonful from time to time without reflecting on quantity he was taking, which was about ʒij. Going now to bed, for ½ h. he suffered no inconvenience. Presently, however, he began to feel warmer and warmer until he experienced a burning heat; his pulse grew very frequent, but there was no uneasiness in head. He says: "I never felt better, never were my ideas more lively and clearer; it appeared as if my intellectual powers were increased, and certainly champagne never brought on a more pleasing intoxication. After about 1½ h. my skin began to grow moist; soon after my pulse became slower and I fell asleep. Next m. I awoke miserably weak, the sweat having penetrated to the under side of the feather bed, and my shirt and bedclothes were drenched." (*Lond. Med. Gaz.*, xi, 772.)

8. Mr. C—, æt. 20, of healthy constitution and full habit, was standing in a shop where a druggist was breaking up cakes of C. He began to eat morsels of it, and probably swallowed from ʒj to ʒij in a few m. Suddenly experiencing a degree of headache, he went out into the street and, meeting a friend, proposed to him a rubber at whist. He felt unusually clear headed; but soon after sitting down, his gestures and conversation became very strange and wild. Leaving room suddenly, he retired to adjoining bedroom, and returned naked, dancing

wildly about, and attempting to jump out of window. Pulse was 180 and small; conjunctiva injected; pupils not much dilated, but scarcely sensible to light; countenance pale and haggard; breathing hurried, and at times greatly laboured; frequent desire to micturate, with some pain along spermatic cord; urine quite clear, but having (as well as perspiration) a strong odour of C.; clammy sweat breaking out over body. Opium was now given, and complicated subsequent phenomena. Patient described sensations while under influence of C. as "most exhilarating, but gradually becoming oppressive." (REYNOLDS, *Monthly Journ. of Med. Sc.*, Sept., 1846.)

9. Two patients took C. (℈ij and ʒj respectively) for severe colic. In both cases, besides other symptoms, whole body became pale and extremely cold; in first, there was also insensibility and collapse. (CULLEN and DUTEAU, in STILLÉ, *op. cit.*, ii, 61.)

10. A hypochondriac took ℈ij in oil. Hardly was dose taken, when patient was seized with vertigo, extremities grew cold, countenance pale, pulse small and very slow; there was præcordial distress, and cold sweat broke out upon forehead; mind became disturbed, and patient laughed loudly at one moment, and at next was depressed with dread of dying. Volatile and stimulating liquids held to nose increased intoxication; patient's limbs seemed weary, and though proclaiming his strength he staggered in walking. In 2 h. he began to come to himself, but was feeble and relaxed; copious perspiration with warm skin and frequent pulse followed, and he enjoyed a good night's rest. (HOFFMANN, in *Ibid.*, p. 58).

11. A nervous and delicate female, afflicted with neuralgia and various scattered pains, had 4 grms. suspended in water given by enema. Hardly had 2 m. elapsed when patient complained of faintness which seemed to threaten dissolution, and of severe pain in belly. Immediately afterwards she became insensible and was convulsed; limbs were contorted; head thrown backwards, face purple, and mouth foaming. The fit lasted 12 m. M. ARAN found her a few m. later with eyes half open, pulse 76-80 and extremely small, extremities cold and livid, and respiration suspended. Patient regained consciousness on water being sprinkled on face, but complained of pain in abdomen, and a sense of suffocation lasting for several h. A purgative enema was administered, and strong coffee given; but very soon after, though she had meanwhile evacuated some of the camphorated liniment, symptoms of suffocation became intense, with face and extremities as cold as marble; they were only mitigated by streams of cold water on head. Insensibility and coldness persisting, patient was placed in a warm bed, and wine with canella administered. From this time reaction came on, trunk grew warm and even hot, pulse rose and became frequent (88-92), and in 4 h. after taking the C. only remaining symptoms were fever, redness of face, heat of skin, and sense of weariness and debility. By the morrow these were entirely dissipated. Patient had no recollection whatever of incidents of attack. (*Bull. de Thérap.*, xli, 164.)

12. Miss T—, æt. 20, took for a slight cold 25 dr. concentrated solution of C. in water. At once felt burning sensation in mouth

and throat; she took water followed by gruel, and went to bed, and believes she immediately went to sleep. Soon after her sister heard her make strange noise, and received no reply on speaking to her. She was found insensible, foaming at mouth, black in face, and violently convulsed. In a few m. convulsions ceased, and vomiting of pink, probably blood-stained fluid, smelling strongly of C., followed. In an h. she was in deep sleep from which she could not be aroused. Throat looked inflamed, tongue covered with thick creamy fur, pupils dilated. For several h. breath continued to smell of C. and she was very drowsy. For several d. complained of pain and tenderness over stomach increased by taking food, numbness of tongue continued for 2 weeks, and l. arm and leg were partially paralysed. She dragged the l. foot along the ground in walking. For some months constant distressing dreams at night, weak and nervous, and occasional weakness and numbness in l. arm and leg. (G. JOHNSON, *Trans. of Clin. Society*, vii, 28.)

13. Rev. W. R—, æt. 64, for slight cold took 3 dr. of Rubini's camphor every 5 m. for 8 doses. Suddenly felt severe pain in head which compelled him to go to bed and lasted for 48 h.; became deathly pale and vomited several times. When he got up severe pain in spine, which made it difficult to keep erect. For 2 months was unable to resume work. (*Ibid.*)

14. A young lady, æt. 19, took for diarrhœa teaspoonful of concentrated solution of C. in water. Soon felt burning pain in mouth, fauces, and pit of stomach, dimness of sight, giddiness, tinnitus aurium, numbness and tingling of arms and legs with loss of muscular power. Unconsciousness lasted for 3 h., during which time there was coldness of surface with quick and feeble pulse, conjunctivæ insensible to touch and tickling of feet not felt, respiration feeble, and slight convulsions. Emetic was given and sensibility gradually returned. She appeared like one awaking out of deep sleep; afterwards burning heat of skin, full and quick pulse, great twitching of eyes, much agitation, headache, giddiness, and inability to walk from loss of muscular power; mucous membrane of mouth slightly red, swollen, and painful. (*Ibid.*)

15. P—, æt. 18, took for slight diarrhœa a teaspoonful of Rubini's C. in water. Soon felt confused and giddy and took a little brandy. In about 30 m. suddenly fell down and was convulsed violently. Bystanders supposed it was epileptic fit. In about 10 m. regained consciousness and took emetic. For 5 d. occasional giddiness. (*Ibid.*)

16. JUAN, Swiss mountain guide, took about 20 dr. for diarrhœa. Soon felt giddiness with headache, nausea, and extreme nervousness. Had to lie down and rest for a time, and afterwards was so nervous that he had to pick his way over the snow for fear of falling, and fell into sort of lethargy, from which he was frequently roused. Next d. was quite well. (CLIFFORD ALLBUTT, in *Ibid.*)

17. Boy, æt. 14, took about 15 dr. of homœopathic tincture.* He immediately became insensible; was soon found pulseless, with extremities cold, and face and lips pallid. An emetic was given and brought

* In all these cases it was the saturated tincture (Rubini's) which was—very improperly—employed, as it was taken merely for a cold.—EDS.

up a quantity of C., and in ½ h. he became sensible. (G. JOHNSON, *Brit. Med. Journ.*, 1875, i, 272.)

18. Lady, æt. 35, took 7 dr. of same. There immediately supervened a very faint feeling, which compelled her to lie down flat on the hearthrug, and she nearly lost consciousness. This lasted about 5 m. When I arrived, her face was very pale, and her pulse weak. She was very drowsy after she got to bed. (*Ibid.*, p. 171.)

19. Young man took within 6 h. 7 doses of 3 dr. each. Within 5 m. after last dose, without slightest warning, had a severe epileptic fit, in which his tongue was badly bitten. Ever since he has felt "queer," complaining of peculiar cold sensation on tongue, extending about ½ in. from tip. (*Ibid.*, 1877, i, 607.)

20. A young lady took a few drops of same. She immediately became very giddy and unwell, threw her arms about a sister, and was seized with strong convulsions. In about ¼ h. there was free vomiting, and she remained unconscious for some time longer. Later she complained of headache and giddiness, and was evidently confused; pulse quick, skin moist. (A. LEGAT, M.D., *Ibid.*, 1875, i, 242.)

21. Patient was a man who generally enjoyed good health; he swallowed at bedtime half a wineglassful of saturated solution. After lying in bed ½ h. he suddenly shrieked, jumped out of bed, and in great anguish and despair bent double. A physician was sent for, who administered an emetic, after which he felt easier, and next d. was able to attend to business. That n. another violent paroxysm took place; he fancied he was able to fly about, and that, in spite of his opposition, he was carried away through the air; he felt drawing round whole head, as though nerves were drawn up, with short remissions, attended with chilly creepings and indescribable sense of malaise. There then developed in him an exceedingly timorous disposition, though he had never before known what fear was; he was more especially tormented by dread of being alone in dark, also of looking-glasses in room and thought of seeing himself in them. Sleep was restless, disturbed by frightful visions of ghosts, &c., frequent tossings about and startings; even while waking he frequently started as if in affright, with palpitation. He had disposition to scream even during work and in the street, without apparent reason; he felt impelled to attack people in the street and kill them. These sensations, which always became more intense in darkness, at n., and in cold, but which did not interfere with his daily pursuits, continued for nearly 2 years; and after 5 years troubled him somewhat, nor had he entirely overcome his fearfulness. (*Hom. Times*, v, 285.)

22. Miss J—, æt 27, to relieve dysmenorrhœa, took increasing doses at intervals during d., and at 6 p.m. 2 tablespoonsful of tinct. at a single dose. In a few moments was free from pain and went to visit a neighbour; but on entering house was attacked with dreadful feeling of faintness, shivering, and numbness, without coldness save in stomach. Could only reach home by determining not to faint, and constantly eating snow and throwing it on to face. On reaching house would not enter it till doctor came, alleging that if she went indoors she should faint, and then have fits and never come out of them. Dr. Young

found her thus and much excited. He had her conveyed into a warm room and placed by a hot fire. Courses were found to have ceased entirely; pulse was imperceptible, heart very slow and intermittent; face and hands deathly pale, extremities numb; she constantly complained of freezing. Reaction was now brought about, and a hot bath, with aconite and pulsatilla, restored the menses. Next d. she felt as well as usual, save for occasional sensation as if she would faint; and for 4 d. more attended to her usual duties. On e. of 4th d., while at piano, a friend suddenly held a bottle of C. to her nose. Patient says she knows she only got one sniff of it, but immediately all her old symptoms returned, viz.: faintness, shivering, coldness, numbness, and thickening of tongue with difficulty of speech and thought. [Last two symptoms occurred also during reaction from original poisoning; but as coffee and laudanum had been freely given they were omitted as scarcely pure.—EDS.] These symptoms were not constant, but came on several times during d. for several d., gradually passing off, and then reappearing without a moment's warning. For some time after this susceptibility to the drug continued. (*Hahn. Monthly*, ix, 301.)

III. *Experiments on animals.*—1. *a.* C. dissolved in oil soon causes in dogs paroxysms of tetanic spasm. At first the senses are entire in the interval; but by degrees they become duller, till at length a state of deep sopor is established, with noisy and laborious breathing, and expiration of camphorous fumes; in this state the animal soon perishes. A solution of 20 gr. in olive oil will kill a dog in less than 10 m. when injected into the jugular vein. When C. is given to dogs in fragments it does not give rise to convulsions, but kills them more slowly by inducing inflammation of the alimentary canal. These are the results of numerous experiments by Orfila.

b. They are confirmed by others since performed by Scudery, of Messina, but this experimentalist likewise remarked that the convulsions were attended with a singular kind of delirium, which made the animals run up and down without apparent cause, as if they were maniacal. He also found the urinary organs generally affected, and for the most part with strangury.

c. In dogs examined immediately after death the heart is no longer contractile, and its l. cavities contain arterial blood of a reddish-brown colour. When the poison has been given in fragments, it leaves marks of inflammation in stomach and intestines. Orfila found these organs much inflamed under such circumstances. Scudery found membranes of brain much injected and brain itself sometimes softened; inner membrane of stomach either very red, or chequered with black, gangrenous-like spots of size of millet seeds; duodenum in same state; ureters, urethra, and spermatic cord inflamed; and every organ of body, even brain, giving out strong odour of C. (CHRISTISON, *op. cit.*, pp. 808, 810.)

2. *a.* Menghini found effluvium of C. fatal to many of the articulata, when enclosed with this substance in a glass vessel, with paper pierced with holes for air. Insects are sensibly affected by its emanations, which ultimately destroy them. According to some experimenters, small birds are all more or less acted on; some are seized

with epileptiform convulsions, others with a sort of intoxication or madness, and others fall into state of stupor, or give signs of distress, with stertorous breathing, hiccup, and frothing at mouth; while in some cases a purgative, emetic, or diuretic action is manifested. Most frequently death of animal speedily follows these symptoms; and on dissection various signs of inflammation are detected in meninges, lungs, heart, and intestines.

b. When C. is given in small doses to horses, oxen, sheep, &c., it is said to quicken pulse and cause general excitement, and blood drawn from a vein flows more strongly and is redder than before experiment. Larger doses, according to Moiroud, develop exalted sensibility and induce convulsions, and still larger quantities produce a greater degree of morbid sensibility, frequency of pulse, convulsive paroxysms, and at last insensibility, and an apoplectic condition. (STILLÉ, *op. cit.*)

Camphora bromata. Monobromide of camphor, a compound in which one atom of hydrogen of the camphor has been replaced by bromine ($C^{10}HO^{16}Br$.)

I. *Provings.*—1. I administered 10 gr. in pills to a healthy adult at 2.30 p.m. after a meal, pulse before taking it being 96, temp. 99·3°, resp. 19. In 1 h. pulse had fallen to 70, at end of 2nd h. it stood at 74, and in another h. had returned to its normal rate (which with him was a high one). During the 3 h. resp. became less by 1 per m., and temp. fell 1°. On succeeding e., some time after a meal, 16 gr. in same form were taken, pulse being 96, resp. 18, temp. 99°. After 1 h. pulse was unchanged, resp. 16, temp. had fallen half a degree; after 2 h. pulse 86, temp. 99°, resp. 19. In another h. all was normal. Throughout whole time there was no hypnotic tendency, nor was there pain in any part of body. Head remained clear, and condition was one of general comfort. Later, one afternoon, shortly after a meal, I gave 5 pills of 4 gr. each; pulse 96, resp. 20, temp. 99·2°. In 1 h. pulse 80, in 2 h. 78, in 3 h. 96 again. Resp. and temp. were reduced in same ratio as before. (On experimenting with camphor alone, results were found to be very similar.) (LAWSON, *Pract.*, xiii, 334.)

II. *Poisonings.*—1. The *Archives* of the late Dr. George M. Beard are responsible for the details of a case which is to say the least curious, and which should be further tested and studied in the light of extended experiment.

a. In a young man, apparently in fair health, and not troubled in the least with indigestion, in the ordinary sense of the term, the contact of a cold and clammy hand with his own, or the sight of a person afflicted with physical deformity, was sufficient instantaneously to produce the most violent paroxysm of gastric catarrh, accompanied by such severe and exhausting throes of convulsive action, that the danger of death from suffocation was by no means an insignificant element. On several occasions the patient actually fainted from exhaustion before relief could be obtained; and the whole gamut of ordinary tonics and sedatives having been tried in vain, a medical expert was finally consulted, with a view to allay an irritability as inconvenient to a man who wished

to enter upon a medical career, as it was peculiar and inexplicable. Among the curious features of the case was the fact that the patient could endure the actual presence of odours of the most offensive kind; and yet so strong was mental association that the mention of such an odour often resulted in a violent attack. He could bear the effluvia and sights of the dissecting-room for hours together without inconvenience, while the glimpse of an insane or idiotic face would induce an instantaneous paroxysm of such intensity and violence that medical assistance had to be summoned.

Monobromide of camphor was administered in 3-gr. doses every 3 or 4 h. with excellent effect upon the gastric irritability, but was followed by most curious mental phenomena.

The patient thus states his own case:

b. "I took the monobromide of camphor as prescribed for a week or more with decided alleviation of the gastric trouble, and had begun to congratulate myself that I could endure the presence of a cuspidor without disagreeable symptoms or disturbance of my internal peace, when a novel and very peculiar train of effects supervened, and the drug began to have a tangible and decided influence. From 30 m. to an h. after taking the dose a strange doziness stole over me. I did not drop to sleep in the proper and natural acceptation of the word, but rather fell into a species of trance of 5 or 10 m. duration, my eyes remaining open and my senses as acute as ever—perhaps a trifle more so. The next step was an unexpected and curious one.

c. "One afternoon, about 3 o'clock, I took the Sixth Avenue elevated train, intending to alight at Twenty-third Street. I entered the car at Park Place, and had been seated 2 or 3 m. when one of my monobromide trances supervened. The buzz of conversation about me was perfectly audible, and I was conscious of all that was passing. I came to myself with a start at Bleecker Street station. My first impression was that I had boarded the wrong train; I was completely 'turned round,' and could not disabuse myself of the idea that the train was going south instead of north. I studied the landmarks and the numbers of the streets one after another from the car window, and soon satisfied my mind that I was travelling in the right direction. But the false sensory impression still continued. I had not altered my position during my doze, nor had the direction in which the train was moving been shifted in such a manner as to account for the strange delusion of the senses. I got out of the car at Twenty-third Street, as I was in the habit of doing, and started to walk home—I had apartments in Twenty-eighth Street—but, familiar as every landmark was, the false sensation was not corrected by my descent to the street. I walked up Sixth Avenue under the impression that I was walking down, and turned to the east when I arrived at the corner of Twenty-eighth Street, under the impression that I was turning to the west. The false sensation—there is no other accurate name for it—persisted until I entered my room, when, with a sudden transition, it disappeared, and I was correct again as to the points of the compass. From the date of this experience the phenomenon was one frequently repeated, and at first I was rather amused and studied its features with something akin

to curiosity. On the Third Avenue elevated railroad, and on the Third, Fourth, and Sixth Avenue surface cars the condition was equally sure to supervene, provided that I had taken my dose of monobromide a few m. previous to setting out, and so common did it become in the course of 4 or 5 d. that I acquired the partial habit of moving about by reference to landmarks, instead of doing so in the semi-automatic way usual with people who are familiar with the ground that they are traversing. One fact I soon ascertained beyond a question, and that was that the phenomenon was not due to any external cause, alteration in my position, or in the direction of the car while I was dozing, but to some internal and unique physiological effect of the medicine. In every instance the points of the compass were exactly reversed. North seemed to be south, and east seemed to be west, and there was no variation from this rule, no partial reversal of the cardinal points, during the 4 or 5 weeks that I was taking the medicine.

d. "I had been the victim of more than 20 such experiences—trances I may style them, for want of a more accurate term—followed by a complete reversal of the points of the compass, which generally lasted for 10 or 15 m., and then suddenly cleared away. But as the monobromide was answering admirably the purpose for which it was prescribed, I still continued to take it. One afternoon as I was riding up Third Avenue, I fell into a doze as the car was passing Cooper Institute and did not recover my normal condition until the conductor called Twenty-fourth Street. As usual I was turned round, and I walked home in that uncomfortable but now familiar state. To my astonishment—an astonishment that deepened into terror as the hours went by—the false impression was not dispelled, as it had always been previously, on entering my room, but remained through the evening, and was still present, like a strange nightmare, when I went to sleep. I passed a few h. in troubled slumber, vexed with ghastly dreams.

e. "My first impulse on getting out of bed in the m. was to step to the window and ascertain whether I was still 'turned round.' The sun was just struggling into view above the cornices of the buildings, and, to my terror, it seemed to be rising in the west. The impression persisted during the whole d., although I at once discontinued the monobromide, and I retired to bed that n. wearied, bewildered, mentally tired with the constant vigilance I had been obliged to exert in order to prevent mistakes in walking about the city in pursuit of my usual vocation. Innumerable large black flies seemed to be flitting and coursing in swarms to and fro across the field of vision; lances of pain shot from temple to temple, and, at the base of the brain, a dull benumbing sense of pressure extended upward in the direction of the coronal region. I fell into an uneasy drowse about midnight, and slumbered for several h. without obtaining any real rest or repose. For a 2nd, a 3rd, and a 4th d. the sensation persisted. To describe what I suffered would be to tax language beyond its resources, the condition was one so whimsical in its nature, and yet so maddening in its effect on brain and nerve—so torturing in its eternal conflict between the senses and the understanding. No one who has not experienced the result of a protracted strain of the faculty of attention such as I was

obliged to endure, can possibly comprehend how such a condition taxes one's physical forces. At the end of the 4th d. I was prostrate in mind and body, and so enfeebled that I could scarcely walk. I saw no relief from the tension but death, thanked God fervently when I began to be a little dozy, and went to sleep earnestly hoping that I might wake up with my points of the compass properly adjusted or never wake at all. Fortunately my petition was granted; another d. of such torture must have ended in insanity or brain fever. The next m. the sun rose in the east as usual, and I went about like one who had been released from a troubled dream; but it was many d. before my nerves fully recovered from the shock they had sustained, and even now I shiver at the recollection of my suffering."

f. Dr. Beard's explanation of the case was: "That by some abnormal action of the drug, some interference, most likely, with the cerebral circulation, the initiative was transferred from the l. hemisphere of the brain to the r. It is a familiar fact that, under normal conditions, all our muscular impulses originate in the l. hemisphere of the brain and are transferred to the r. The l. lobe of the brain leads, the r. follows, and thus the activities of a mass that actually consists of two brains which are functionally independent of each other, are co-ordinated and work together in harmony. If both hemispheres acted simultaneously and independently the result would be double thought, double life, disorder, and contradiction. Each hemisphere being, then, so far as nervous functions are concerned, both motor and sensory, a perfect brain, one must be subordinated to the other in function, or confusion would result; and it is probable in point of fact that many strange psychological phenomena actually arise from temporarily interrupted or defective co-ordination; as when, for example, a man has the momentary consciousness of double being or of living a double life—a phenomenon due, no doubt, to the momentarily independent action of the two masses. In the case of the young man, it is probable that the co-ordination of the two hemispheres was disturbed, and that the r. for the time being assumed the initiative that had so long appertained to its fellow.

g. "The result was a complete reversal of the established associations of the sensory and intellectual life. As the effect of the sedative wore off and the normal circulation was re-established, the l. hemisphere resumed its former hegemony, and the natural order of things was restored.

h. "It is possible, again, that the trouble was confined to the optic nerve and its lobes, and did not extend to the whole cerebral mass. A little anatomical study will readily explain how this might occur, with the exact result described by the patient. But this is certain, in any event, that the old explanation of being 'turned round' did not hold good in the case under consideration, and that a deeper and more occult cause must be assigned for it." (*N. Y. Med. Times*, April, 1883.)

III. *Experiments on animals.*—1. Like other bromides, it produces weakness and paralysis, stupor and sleep. It slows pulse and respiration, and reduces temperature. In the rabbit the vessels of the eye and ear are contracted. When given for a length of time it produces

marked emaciation. In large doses it has caused epileptiform convulsions. (BRUNTON, *Pharmacology*, p. 930. Summary of De Bourneville's experiments in *Practitioner*, xiii, 112.)

CANNABIS.

Hemp. Nat. Ord., *Cannabinaceæ*. [There seems no essential distinction between the C. sativa and the C. indica; and their effects exhibit no sharp lines of demarcation, as the following pathogeneses show. Nevertheless, it has been thought well to give each a separate section, that any real difference of action may be utilised in practice.—EDS.]

Cannabis sativa. Common hemp.

I. *Provings.*—1. HAHNEMANN, *Mat. Med. Pura*, vol. i of original and translation. Contains 283 symptoms from self and 8 others, and 47 from authors.

2. April 7th, 7 a.m., took 10 dr. tinct.—9th, 7 a.m., 30 dr. No symptoms.—11th, 7 a.m, 70 dr. At 12 noon, severe tearing and boring in r. side of skull—a symptom often observed without taking medicine. 3 p.m., weight and heat in sinciput till e. 4 p.m., shooting in end of urethra repeatedly, not when urinating. (LEMBKE, *Z. f. h. Kl.*, iv, 155.)

3. Nov. 26th, 1 dr. tinct. Strong erections in m. after coitus in n.; stools irregular, much pressing required, attended with tenesmus, which continues after evacuation; sometimes has sudden call to soft stool; frequent urging to urinate, sometimes with burning, urine turbid; sexual desire goes off later. The first 2 d. on waking in m., vertically disposed, shining, white points extending in lines from one eye to the other, they go off some time after rising, later flickering before eyes, light and dark points hover in different directions before the sight. After 4 d., in l. ear a ringing as if a stretched string were struck, which reverberates a long time; an inflamed pimple in r. ear, very painful when touched, with swelling of inner ear, matter forms after 4 d., which is discharged mixed with blood; ebullition of blood to head with heat; at n. very hot, sweats towards m.; his nipple inflames, itches, is painful to touch; a pustule beside it which does not burst, but goes off after a few d. On hairy scalp, on nape and behind ears painful tender pimples, which heal up in a few d. without scabs; aching and itching in eyeballs; scraping and burning in throat for some d., he must hawk and has dry cough, in the m. much mucous expectoration. After 10 d. oppressed breathing, precordial anxiety, stitches between scapulæ, aggravated after eating, relieved by sitting. After 12 d. vomiting after coffee of viscid acid slime. On stooping cramp in nates, must rise up immediately; several such attacks.—Dec. 2nd, 2 dr. Afternoon and e. his thoughts are confused and he writes in the wrong place, at same time heat and ebullition in head, but chilliness in open air, itching in fingers and hands; vivid agreeable dreams; depressed spirits.—9th, 5 dr. Woke next m. at 6 o'clock with urging to stool, but nothing but wind passed and the urging continued. After a pipe had a hard stool, with nausea and inclination

to vomit.—10th, 10.30 a.m., 4 dr. Immediately forgets what he was going to write, retching and inclination to vomit. After 3 h. needle pricks in tip of r. ring finger. Later in afternoon, feeling of great coldness under nails; slight drawing in a hollow tooth, especially when something acid touches it.—11th. Awoke with great nausea and inclination to vomit, especially when lying on r. side; for several d. great appetite in e., eats too much and is sick; uncomfortable and depressed all d. with eructation of air and fulness in abdomen and no appetite till n., when appetite returns; in e. chilliness, yawning, stretching limbs and laziness; prickly feeling under l. big toe as if great coldness were under nails; cramp in r. heel; itching wheals on arms and nape, which soon go off; toothache drawing in a hollow tooth and violent shooting on sucking it out with tongue; r. side of palate swollen and a lump on it as from a gumboil.—12th. Woke in m. with nausea and inclination to vomit, all m. uncomfortable yawning, sleepy, lazy, inclined to do nothing; rumbling in bowels, slight spasm in stomach, which feels empty, though he cannot fancy anything to eat. Imperfect erection during coitus without voluptuous feeling or ejaculation. Mouth of urethra somewhat inflamed, painful, and feels hard. Much flatus m., stool in small pieces, with flatus; after coitus without pleasure, strong painful erections at n. which woke him up; cutting-shooting in orifice of urethra; spasm in stomach; nausea and hawking of mucus and vomiting, relieved by coffee; depression of spirits; in m. visible and perceptible pulsation of temporal arteries—14th, 20 dr. 1st dil. Immediately nausea and vomiting at first of bitter then of insipid mucus with great straining; teeth on edge; afterwards hunger; l. cheek red but cool, r. pale, r. teeth painful. After ½ h. pinching in belly, like call to stool. After 1 h. ebullition towards head when writing; heartburn; woke, m., with urging to stool; in spite of much straining only wind came, the urging to stool and urine continued till he took coffee and smoked a pipe, when he had a broken-up stool, but vomited the coffee; itching in urethra; eruption of papules, which itch and smart, on chest and back.—1st d., shooting in rectum, with a kind of contraction of sphincter, frequently, when walking; afternoon, a strangling sensation in l. testicle when walking, the epididymis and spermatic cord swollen in lumps like beans.—2nd d., sore-throat as if raw, with great dryness, worst m. in bed, after rising expectorated a lump of mucus and felt better; scrapy and dry in chest; 1 h. after breakfast general discomfort, especially in abdomen, as if blown out, with shooting-cutting pains there and chilliness all over; eructation with taste of food, later of mere wind; teeth on edge; hawking of mucus difficult to detach that irritates throat; feet feel heavy when going upstairs; sensation as of sand in r. eye; very distracted, cannot comprehend things easily, hardly knows what to write, confused thoughts; urging to stool after dinner and diarrhœa, later itching and pricking in rectum; sleepy for ¼ h. after dinner; itching on chin and tip of nose; when sitting r. natis becomes painful and r. leg goes to sleep; shooting-pressing pain in l. little toe formerly the seat of a corn; e., burning in eyes; spasmodic pain in stomach, m.; heaviness and going to sleep of r. hand, relieved by moving it.—6th d., violent

burning of all skin, especially feet, hands, palms, and belly, all n., and next m. a painful pustule on nape. (SCHRETER, *N. Archiv*, iii, 1, 172.)

4. Mrs. S—. Dec. 2nd, 7 dr. tinct. After 3 h. (at 10 a.m.), earache and pain in throat, then coldness with heat alternating with dull headache, aggravated by moving and stooping as if all within head were shaken, so that she must walk quite stiffly or sit quite still leaning against something, frequent stitches in head on l. side and behind r. ear; the stitches so violent they made her start, lasted at n. in sleep, so that she moaned and groaned and frequently woke. Pressure on eyelids so that she can with difficulty open them, and stitches round about orbits; some heat and fever, glowing hot face, but it felt cold when she moved; severe pains in throat, which is swollen outside and inside, with dysphagia; very tired, must lie down all d. Shooting in upper arm and bones of little finger, this lasted 3 d.; in the flesh on outer side of l. tibia pain like a bruise, then shooting in whole l. extremity; shooting and pain in l. ankle-joint, relieved by washing in cold water; stool thin and yellowish, passed by mistake, thought it was wind; pains in abdomen, cutting, not removed by rubbing, but only by drinking cold water; urine scanty; no voluptuous feeling during coitus; dizziness for some d., the room seemed to turn round with her.—10th, 10.30 a.m., 4 dr. Always giddy, things seem to whirl round; hiccup, m.; itching-shooting in vagina, and leucorrhœa after coitus; urine scanty; slight bellyache before stool. Itching pimples on neck, nape, and chest; gum around a decayed tooth inflamed, swelled and painful; head constantly dizzy, it felt as if moving from one side to the other.—14th, 20 dr. 1st dil. Drawing pains in a decayed tooth with swelling of gum, e.; before stool always slight bellyache; stool sometimes loose, sometimes hard; itching around knee; a hollow tooth crumbles away. (*Ibid.*)

5. From taking some tablespoonfuls of an infusion of ʒij fresh can. sat. in ℥viij water,—vertigo, confused head, headache, tinnitus aurium, pale face, dryness of mouth, viscid mucus in throat, eructation, complete anorexia, loss of taste, cough; weak, often inaudible, voice, oppressed breathing and pressive pain all over chest, transient violent palpitation of heart, exhaustion, eruption on head and chest consisting of white vesicles filled with serum, with red areola, burning when touched. (KNORRE, *A. h. Z.*, vi, 34.)

6. April 20th, 5.15 p.m., WIBMER took 5 dr. tinct., pulse being then 75. At 5.30, 10 dr. After 5 m., slight frontal headache, dryness of mouth, throat, and lips. At 6 p.m., 20 dr. Taste disagreeable. After 10 m., slight headache with slight throbbing and pressure. At 6.30 p.m., quite well. Then he took 40 dr., the pulse being 78. Slight headache came on. At 7 p.m., on getting up, felt the limbs much fatigued, this went off by walking.—April 21st, at 11.45 a.m., pulse being 80, took 50 dr. Taste disgusting. After 7 m. some drawing through forehead. After ¼ h. frontal headache, which lasted till 1 p.m. After 3 d. the fatigue of limbs increased, especially of lower limbs, with violent pain in sacrum, which compelled him to sit and rest after the slightest exertion; at same time drowsiness and paleness of face. On the 6th d. the throbbing headache, with heat of head and fever, recurred, compelling him to lie down. Venesection to 12 oz.,

leeches and cold compresses to the head, relieved the headache, but the pain in sacrum, the weariness and fever, continued longer. There was also complete anorexia, thickly furred tongue, and constipation, though he had suffered from diarrhœa a few d. before. This condition kept him nearly 14 d. in bed, during which the symptoms gradually subsided, but there long remained anorexia and complete loss of tone in intestinal canal. The strongest purgatives in large doses were unable to clear out bowels of fæces and flatulence. For many weeks afterwards he suffered from weariness of limbs, impaired digestion, and great paleness and leanness of face. (*Wirk. d. Arzneim. u. Gifte*, ii, 230.)

7. *a.* About 4.30 p.m., I took a very large dose of an extract from a hemp plant grown in Kentucky, the summers of which approach in heat the more temperate parts of India. No immediate symptoms were produced. About 7 p.m. a professional call was requested, and, forgetting all about the hemp, I went out and saw my patient. Whilst writing the prescription I became perfectly oblivious to surrounding objects, but went on writing, without any check to, or deviation from, the ordinary series of mental acts connected with the process, at least that I was aware of. When the recipe was finished, I suddenly recollected where I was, and, looking up, saw my patient sitting quietly before me. The conviction was irresistible that I had sat thus many m., perhaps h., and the idea directly occurred that the hemp had began to act, and had thrown me into a trance-like state of considerable duration, during which I had been stupidly sitting before my wondering patient.

b. I hastily arose and apologised for remaining so long, but was assured I had only been a very few m. About 7.30 p.m. I returned home. I was by this time greatly excited, and the feeling of hilarity now rapidly increased. It was a sort of bien-être, a feeling of inner joyousness; the heart seemed buoyant beyond all trouble; the whole system felt as if all sense of fatigue were for ever banished; the mind gladly ran riot, free constantly to leap from one idea to another, apparently unbound from its ordinary laws. I was disposed to laugh; to make comic gestures; one very frequently recurrent fancy was to imitate with the arms the motions of a fiddler, and with the lips the tunes he was supposed to be playing. There was nothing like wild delirium, nor any hallucinations that I can remember. At no time had I any visions, at least any that I can now call to mind; but a person who was with me at that time states that once I raised my head and exclaimed "Oh, the mountains, the mountains!" Whilst I was performing the various antics alluded to I knew very well I was acting exceedingly foolishly, but could not control myself.

c. I think it was about 8 when I began to have a feeling of numbness in my limbs, also a sense of general uneasiness and unrest, and a fear lest I had taken an overdose. I now constantly walked about the house. My whole surface felt flushed and warm; my mouth and throat were very dry; my legs put on a strange, foreign feeling, as though they were not a part of my body. I counted my pulse, and found it 120, full and strong. A foreboding, an undefined horrible fear, as of impending death, now commenced to creep over

me: in haste I sent for medical aid. The curious sensations in my limbs increased; my legs felt as though they were waxen pillars beneath me. I remember feeling them with my hand, and finding them (as I thought at least) very firm, the muscles all in a state of tonic contraction.

d. I then began to have marked "spells"—periods when all connection seemed to be severed between the external world and myself. I might be said to have been unconscious during these times, in so far that I was oblivious to all external objects; but on coming out of one, it was not a blank, dreamless void on which I looked back, a mere empty space, but rather a period of active but aimless life. I do not think there was any connected thought in them; they seemed simple wild reveries, without any binding cord—each a mere chaos of disjointed ideas. The mind seemed freed from all its ordinary laws of association, so that it passed from idea to idea, as it were, perfectly at random. The duration of these spells was to me very great, although they really lasted but from a few seconds to 1 or 2 m.. Indeed, I now entirely lost my power of measuring time; seconds seemed hours, minutes seemed days, hours seemed infinite. Still, I was perfectly conscious during the intermissions between the paroxysms. I would look at my watch, and then after an h. or two, as I thought, would look again and find that scarcely 5 m. had elapsed. I would gaze at its face in deep disgust, the minute-hand seemingly motionless, as though grown in the face itself, the laggard second-hand moving slowly, so slowly. It appeared a hopeless task to watch during its whole infinite round of a m., and always would I give up in despair before the 60 seconds had elapsed. Occasionally, when my mind was most lucid, there was in it a sort of duplex action in regard to the duration of time. I would think to myself, It has been so long since a certain event,—an h., for example, since the doctor came; and then reason would say, No, it has been only a few m.; your thoughts or feelings are caused by the hemp. Nevertheless, I was not able to shake off this sense of the almost indefinite prolongation of time, even for a minute.

e. About 8.45 I was standing at the door, anxiously expecting the doctor, the spells coming on from time to time, and unaccompanied by any muscular relaxation, so that I remained standing, leaning perhaps slightly against the doorway. After a while I saw a man approaching, whom I took for him. The sound of his steps told me he was walking very rapidly, and he was under a gas-lamp, not more than the fourth of a square distant, yet he appeared a vast distance away, and a corresponding time approaching. This was the only occasion on which I noticed an exaggeration of distance; in the room it was not perceptible. My extremities now began to grow cold, and I went into the house. I do not remember further, until I was aroused by the doctor shaking or calling me. I narrated what I had done and suffered, and told the doctor that my opinion was that an emetic was indicated, both to remove any of the extract still remaining in my stomach, and also to arouse the nervous system. I further suggested our going into the office, as more suitable than the parlour, where we then were. There was at this time a very marked sense of numbness in my limbs, and

what the doctor called a hard pinch produced no pain. When I attempted to walk upstairs my legs seemed as though their lower halves were made of lead.

f. After this there were no new symptoms, only an intensifying of those already mentioned. The periods of unconsciousness became longer and more frequent, and during their absence intellection was more imperfect, although when thoroughly roused I thought I reasoned and judged clearly. The oppressive feeling of impending death became more intense—it was horrible. Each paroxysm would seem to have been the longest I had suffered; as I came out of it, a voice seemed constantly saying, "You are getting worse; your paroxysms are getting longer and deeper; they will overmaster you; you will die.' A sense of personal antagonism between my will-power and myself as affected by the drug grew very strong. I felt as if my only chance was to struggle against these paroxysms; that I must constantly rouse myself by an effort of will, and that effort made with infinite toil and pain. I felt as if some evil spirit had the control of the whole of me, except the will-power, and was in determined conflict with that, the last citadel of my being. I have never experienced anything like the fearful sense of almost hopeless anguish and utter weariness which was upon me. Once or twice during a paroxysm I had what might be called nightmare sensations; I felt myself mounting upwards, expanding, dilating, dissolving into the wide confines of space, overwhelmed by a horrible, rending, unutterable despair. Then, with tremendous effort, I seemed to shake this off, and to start up with the shuddering thought, Next time you will not be able to throw this off, and what then? Under influence of an emetic I vomited freely, without nausea, and without much relief. About midnight I went upstairs to bed. My legs and feet seemed so heavy I could scarcely move them, and it was as much as I could do to walk with help. I have no recollection whatever of being undressed, but am told I went immediately to sleep. When I awoke, early in the m., my mind was at first clear, but in a few m. the paroxysms, similar to those of the e., came on again, and recurred at more or less brief intervals until late in afternoon. All d. there was marked anæsthesia of skin. At no time were there any aphrodisiac feelings produced. There was a marked increase of the urinary secretion. There were no after-effects, such as nausea, headache, or constipation. (H. C. Wood, *Therapeutics*, sub voce.)

8. *a.* P. A—, æt. 24; nervous temperament, good health. Took 3 grms. of fresh alcoholic extract 1 h. before eating. Felt about midmeal vague sensation of drawing (tingling), which is a commencement of anæsthesia of skin, and which has been likened to that felt on entering bath. Soon palpitation of heart came on, increased, then diminished and disappeared only to come again shortly after. Pulse small, rapid, at times irregular. Difficulty in swallowing, owing to want of saliva, and I could not eat any more. Feeling as if "stunned" and of compression in head. Felt no longer master of myself; remained motionless on chair for some time. Pulse rapid, about 100. Breathed strongly, puffs of heat rising. Head began to make circular movement, which, extending to whole body, carried me off with chair on

which I sat, and I fell down. This happened twice more; I got up then and walked, but as if I had St. Vitus's dance, made contortions and grimaces, burst out laughing, emitted harsh cries. I often had brief remissions, during which I told bystanders that the effect was over, but I could not finish my phrase before a severer attack came on. Movements suddenly got more regular, and I began to dance, turning and singing, until I fell down worn out. Got up a moment later, and sat down in armchair, shut eyes, and soon felt sensation in head as if stunned and compressed stronger and stronger; at same time I lost consciousness of existence of my limbs. I can only compare this to sensation experienced just before losing consciousness under chloroform. Remained in this state five or six m., then I returned for a moment to normal state. Had been during this attack very sad, whereas previously I was very gay. Felt effects going off, got on to a bed, slept for 20 m. pursued by tiring thoughts, woke up quite well again; whole effects lasted 2 h.

b. Took 2 grms. of another extr. 20 m. before food. Very acrid taste, nearly made me vomit. Effects began in 5 m., had vertigo and tendency to laughter, ran about, gesticulated for 10 m., then I sat down, determined that no one should notice anything of my state. Nevertheless, I could not contain myself on the entrance of somebody. Had contortions, got up, ran about gesticulating and with choreic movements. Sat down to dinner after awhile, could not eat owing to total absence of saliva. Got up and walked like one with St. Vitus's dance. Pulse frequent, 110. Tension about head, deep inspirations, eyes red, attacks of gaiety. This state lasted 2 h. and then entirely disappeared.

c. At 10.5 a.m. I swallowed 4 grms. of another; pulse 80, conjunctiva slightly red. 10.40, ate as usual. At 11 felt effect beginning. Disposed to speak and laugh, but resisted. In 10 m. I was quite under its influence. I left the house tottering as I went, felt great tension about head, heat in eyes. Legs very heavy; feet felt dislocated and turning now inwards, now outwards. Heart palpitated. 11.30, pulse too rapid to count, conjunctiva very red, eyelids half closed. Have feeling of intense bewilderment, tremblings in wrists, can hardly write. 11.40, head very heavy, tendency to immobility, sensation of undulating flames before eyes, conjunctiva very red, pupils strongly dilated. Eyelids are seat of sensation of heat and pricking at ext. angle; pulse 130, small, compressible, very irregular; palpitation, beatings at nape of neck, tongue dry, no thirst. 12.5, same state of eyes, they seem to me swollen; feel spasmodic closing of jaws, pressure at temples; pulse 130. 12.10, undulating feeling in whole body, sight dim, leaden countenance, sensation of pressure at mastoid processes, and of hissing in ears. 12.18, great weight of head, eyes painful, pupils dilated, sensation of flames before eyes, great dryness of mouth and nose, tongue dry, covered with white dried mucus; pulse 140. I feel in a world which is no longer the same. 12.35, want to urinate, but find great difficulty. Eyes same; very tired; I go to bed. At 1.15 I get up, I seem to have lain a long time. Numerous ideas have rolled like torrent over my brain, but I can recall none. Head very heavy, can hardly see to write; nausea, mouth very dry; when I bend over the paper I have

difficulty to combat inclination to immobility. I press my pen tight cold extremities, no warmth at skin, frequent want to urinate; se to have been long thus. 1.30, mouth always very dry, tongue cove with white lines, dryness of pharynx. 2, pulse 130, weight at gastrium. 3, face very pale, same redness of eyes, great musc weakness. A friend comes, who continues observation for me. 3 breathing frequent, heart-beats weak. Patient complains of palpitat pulse 130, small, compressible, face pale, like one affected with a disease of brain, eyes injected, very bright. Digestion retarded. 3 pulse 110, he hardly answers questions. 5, went out, was bewilde all the time. 5.30, took some soup. 7, loud hissing in ears, palpitat general stiffness. Symptoms increase. 9.15, can hardly stand, h pains top of head, r. side; pain at bottom of spine, and in coxo-fem joints; very tired; pulse 140, downcast look. 10, to bed. Bec very stiff, moved arms with difficulty, lost sensation of anything contact with me, my body seemed transformed into solid mass. V frightened at this state, which went away and often returned. I co hear an intense noise, a great bell. Slept at 11.30, woke often dur n. Next m. thought I was cured; no headache, pulse slow, but h heavy as soon as I got up, and mind troubled. Ate little, tension head increased. This was repeated for 9 d., viz. feeling well waking, but head heavy on rising and mind clouded and unfit for in lectual work. Constipation remained for some time after. (Prosi Albert, *Obs. sur le Chanvre indigène*, Strasburg, 1859.)

9. Mdlle. X—, æt. 25, nervous temperament, impressionable, w constitution and health, took 2 grms. of 2nd extract 15 m. before fo While eating she became first of all very preoccupied, then began to gluttonously, which was contrary to her habits. Towards end of m she looks at people at table with astonished air and strange express then bursts into ceaseless laughter interspersed with harsh cries. called to her loudly to make her stop; she did stop, got up, and be to go about room with preoccupied air, sometimes stopping, turn round on her heel, and then going on again. Pulse very frequ though small; mouth dry, eyes red, palpebral circle narrowed. Be then to walk in grotesque manner and laugh loudly, then advanced ma tically towards a person and bowed repeatedly to her, then burst laughing. Walked on again mumbling something unintelligible, denly sat down, became very pale and fainted. Breathing became d cult, pulse very frequent, very small, so much so that I could longer feel it. Muscular relaxation complete. In a short time called in low voice, saying she could not see, and that she was dyi pupils very dilated, eyelids drooping, could not move, but limbs v not stiff. Gave her a cup of tea, which made her vomit a good de she was put to bed, and remained in comatose state, rarely answe questions. Pulse increased a little, second cup of tea made her vo again, and prostration followed these attacks, which had lasted 4 h. N d. was quite well. (*Ibid.*)

10. *a.* M. L—, 5.5 p.m., pulse 80, regular; state normal; a 2½ grms. of 3rd ext., sits down to eat at 5.10. At 5.25, face bec animated, blood to head, becomes talkative. 5.30, inclines head to l.

r. Pulse 100. 5.40, falls on one of his comrades with loud burst of laughter. 5.50, we took him away with us; on way he spoke with volubility, ran, dragging people whose arm he had. When he got to his room, 6.40, pulse 100, still talks, but has calm moments. 7 p.m., almost in normal state again, only slight heaviness of head. 7.15, pulse 80, quite well again.

b. At 4.15 p.m., 2 grms; at 6, dined with much appetite. Up to 8 p.m. he was only excited, making him speak much, but spoke sensibly. Pulse 90, breathing regular. From 8 to 9.30 he felt fatigued; pulse 80. Nothing noteworthy, but at 9.30 he had strong sensation of heat, breathing more frequent, eyes became injected, great lassitude came on; pulse 120. At same time had such feeling of wellbeing that he would not be disturbed. Weakness persisted; he fell asleep; pulse 100.

c. Took (next d.) at 9.50 a.m. 6 grms. extr. fasting. Pulse was 75, breathing regular. Began to eat at 10.35. At 10.50 effect began; look is undecided, eyes begin to inject; pulse 100, small, breathing frequent. At 11, he becomes very loquacious, leans to r. and l., wanders. Begins phrases which he cannot end; pulse 120, eyes and face congested, cold extremities. 11.10, agitated and wanders still; will not have pulse felt, and laughs loudly. 11.15, face is the seat of partial contractions; does not speak any more, looks sad, and inclines his head; pulse 110. 11.20, wanders again, cries out, very agitated; he notices himself that he is talking nonsense; face has look of stupor; breathing frequent and impeded; eyes very congested, haggard. 11.25, same wanderings, is joyous, rallies, and seems to be quarrelling with an Invisible being, who he thinks wants to harm him. Gets up and sits elsewhere. 11.30, begs people to excuse the "négligé" of his dress with very sad look; sighs and goes with contrite air to lie down full length on sofa. Cold extremities; noisy breathing; pulse 140, irregular, small; mouth very dry; however, he spits constantly; drinks much. 11.40, he shuts his eyes, does not move, nor answer questions. A child passes singing in the street; he says he hears an harmonious voice. 11.55, pulse 110, same state. At 12, same torpor; the clock strikes at cathedral, at the first beats he complains that they have been ringing very long, complains thus at each stroke of the clock. 12.15, same injection of eyes, haggard look; pulse 110, same wandering, nausea, pupil is not contracted and remains sensible to light. 12.25, same state of pulse, nausea, slight vomiting, falls into state of torpor and then complains of headache. He does not feel returning to normal state. Intellect still hampered, head heavy, he feels great weakness. 12.35, falls asleep, breathing regular. 1.30, I awoke him; head still heavy; has not dreamed during sleep, intellect still clouded, and same feeling of no strength. At 3 p.m. he still had tension in head, but intellect was clear. All rest of d. he had heaviness of head and headache. After dinner at 6, he had an attack again which looked like drunkenness. Felt very tired and went to bed early; agitated sleep, but well next d. (*Ibid.*)

Cannabis indica, Indian hemp. (Haschisch, bhang, gunjah, churrus, denote various native preparations of this plant, all of which owe their activity to its peculiar resinous exudation.)

I. *Provings.*—1. April 13th, 7 a.m., 10 dr. tinct.—14th, 7 a.m., 20 dr. Between 12 and 2 p.m., when walking slight tendency to vertigo. —15th, 7 a.m., 30 dr. Head heavy, confused; vertigo from 7.30 a.m. till e. 9.30 a.m., pressive pain on various parts of skull, in l. wrist and l. ankle, severe pain in muscles below l. scapula.—19th, 7 a.m., 30 dr. 10 a.m., slight transient weight and heat in sinciput.—20th. Pain in wrists and ankles, stitches in urethra; some days incomplete urination, it cannot be completed without great pressing.—23rd, 7 a.m., 45 dr. 8 a.m., forehead confused, heavy. 6 p.m., shooting in end of urethra; e., pain in r. ankle-joint.—25th, 10 a.m., severe pains in joints of r. big toe; in same e.—29th, 7 a.m., 60 dr. 9 p.m., a peculiar, very painful weariness in both legs. 10 p.m., tearing pain in l. knee; during the last d. urine darker and scanty.—29th and 30th. Two liquid stools and frequent urging to stool without result.—30th. E. and n., shooting in end of urethra, pain in l. wrist.—May 1st, 7 a.m., 60 dr. In the n. frequent urination, urine dark coloured, shooting in urethra.—3rd. Anxious feeling in chest, and quick, small, irregular heart's beats almost all d.—7th, 10 a.m., small, irregular heart's beats causing anxiety when sitting and stooping. (LEMBKE, *Z. f. h. Kl.*, iv, 155.)

2. Dr. HEINRICH took, May 6th, at 5.30 p.m., 10 gr. of a peculiar preparation of can. ind. called "Birimingi." He chewed it and swallowed all but about 2 gr. of insoluble matter. Then occurred scraping in fauces, eructation, and slight nausea. Could not smoke a cigar in consequence of the dryness and roughness of throat. At 7 p.m. met a friend and spoke all kinds of stupid nonsense to him; everything appeared in a ridiculous light. Face and eyes red, felt hot and had a sense of agility in his movements. This lasted 20 m.; then suddenly he felt much oppressed, everything seemed too narrow, his features were distorted, his face pale; he felt as if all his blood was boiling and streaming up to his head; he felt as if his body was lifted up and he was going to fly; compressive and constrictive feeling in pit of stomach. His anxiety and weakness seemed to deprive him of all power of will, so that his companion had to drag him along. After washing and drinking cold water he felt better for 5 m. His pulse was small and with long intermissions. He felt sure his last hour was come, and he cried out, "I am dying, I shall soon be dissected in the dissecting room!" Horrible visions rose before him, increasing in horrible character till unconsciousness came on; as consciousness returned some pleasant visions occurred. It seemed to him that he was carried up hills and steep precipices with enormous abysses beneath him, and all the time he chattered continuously. But in spite of his talkativeness he felt that he could not express half what he felt. All his thoughts and actions since childhood seemed to recur to him. When he opened his eyes he saw everything and everybody about him, and he answered questions, but broke off into extravagant fancies. He did not know when they applied mustard plasters to his legs and rubbed him with brushes, the sensibility of his skin was so much decreased. He was not aware that he had a rigor, and he passed his urine involuntarily. At 8.30 the pupils were slightly dilated, conjunctiva injected, heart's beats very weak, sometimes scarcely perceptible, pulse frequently

imperceptible for 1 m. and more, it then became stronger and went up to 78 (normal pulse 58—60). These alternations of weaker and stronger pulse recurred several times in the h., respiration gentle, regular, belly distended, extremities cold, sometimes trembling, skin insensible to cutaneous irritants. He was possessed with the idea that he must die and would be dissected, and he took leave of those around him. This idea recurred frequently, and was always synchronous with the sinking and extinction of the pulse. At 10 p.m. he regained mastery over his mental functions, stopped chattering and felt pain in præcordial region where mustard had been applied. Thoughts chased one another so rapidly through his mind that he thought a much longer time had elapsed than was the case. He did not sleep at n. He passed urine more frequently than usual and not without difficulty. Next m. he was still too confused to be able to do his work or collect his thoughts, and he felt very weak. On the 3rd d. he walked about supported between two persons. The bowels remained constipated for several d. (*Zeitsch. d. Ver. d. hom. Aerzte Oester.*, ii, 306.)

3. Dec. 6th, 1866, Mr. — took 60 minims of tinct. at 11.25 p.m. Read till 12.5 a.m., then began to think about it, imagining that no effect would follow, when he felt sudden, dull, aching pain and constriction, with numbness and tingling as if electrified, beginning in r. arm, gradually passing down to feet and then to head, chiefly felt in arm and axilla. Came on and off like wave of sensation, confined to r. side (this side was next the fire). Peculiar metallic sensation in r. half of tongue; sight rather hazy; buzzing in r. ear; he seemed to go to sleep now and then for a few moments, which, however, appeared much prolonged, with pleasant dreams, then woke up and wrote down these notes. Only 10 m. had elapsed, seemed 2 h.; sensations exalted and magnified; pulse seemed stronger; ideas flowed more rapidly; pictures on wall seemed larger than reality; thought he was in Mr. C—'s room, recognised pictures as belonging to him, though they were really Mr. R—'s, in whose room he was. Pulse, counted by friend, 120, full and bounding, is usually 84 at this time. When he ceases to exercise his will falls into a kind of dream which seems painfully prolonged; feels as if he never would get through n. While writing these notes time seemed prolonged; seemed to dream between each two strokes of pencil; all feelings of pleasure and pain seem exalted; teeth of r. side of mouth seem to him to be clenched (not noticed by his friend; was probably subjective; 9 d. later took morphiæ acetas, which caused feeling as if *both* sides of teeth were clenched; never had it at any other time). R. side of body felt much enlarged; he thought if he continued to grow thus he must bend over to opposite side (all these symptoms occurred within 1st h.). Memory seemed failing; pleasant burning heat over whole body; oppression on chest; indescribable sensation of oppression about heart; feeling of sickness at heart; heart's beating felt much embarrassed, sharp and quick, weak and small; its contractions seemed jerky. This lasted till he went to bed, 3 a.m. Pulse he counted as 130; then followed great constriction in head, as from iron skull cap; memory seemed gone (afterwards, however, remembered nearly all that had taken place); pencil seemed very large; felt very

badly; felt sick at heart (word "*heart*" really refers to *heart*); fits of mental depression; no power of will; his friends now went out of room; he thought they had left him to his fate and wrote "*cowards*" in his notes; they seemed gone a long time. When they had gone he went into bedroom; stood in reverie, which seemed 3 or 4 h., looking through half-opened door into sitting-room; sitting-room seemed to be of an immense depth below him, though really on same floor; globe of lamp appeared of enormous size; passed through sort of dream connected with all this; there was curious sensation connected with the air, but he cannot recollect it. Ceased to take notes about 1 a.m. Following symptoms were given me from memory a few d. afterwards: Very excited; began dancing about room; frequently laughing; talked nonsense, knew it, but could not stop without effort of will, which he did not care to make. His friends tried to persuade him to go into surgery to take beer and morphia, but he was sensible enough to refuse. His power of will with regard to commands of others seemed intact, but not over himself except under strong stimulus. Thus, when Mr. H— came into room, not wishing to be thought drunk, he lay down on a sofa, and could keep from talking by great effort, but when he did speak to Mr. H— he slightly wandered. When Mr. H— left he went on as before. About 3 a.m., having roused himself to sobriety, he went to bed. Stumbled down steps on leaving his friend's room. Here he met another, who called him by name, and told him to take care of coal scuttle at foot of stairs. He felt displeased at his name being called out at that time of n. Went upstairs all right; avoided scuttle, of which he seemed somehow afraid. Had distinct sensation that he must keep sober till he got to bed, otherwise he might do something foolish. Went to bed; fell into drowsy state. Imagined finger-nails of both hands about size of a plate, very curved, otherwise of natural shape; on opening and shutting fingers they seemed to slide over one another like a fan; on tapping them against hard surface delicious sensation was produced. Remembered events of childhood (not *now*, but recollects that he could *then*). Very delicious dreams, cannot remember much of them now. Woke in m. not quite sober; could not read or understand his letters properly; felt drowsy till 1.30 p.m., with alternate waking and sleeping, but waking time was a pleasant dreamy state. 1.30 p.m., increased appetite, ate good lunch (had had no breakfast). All afternoon, alternate dozing and waking; same pleasant dreamy state while waking. Increased appetite at dinner. After dinner dozing and waking as before, then took coffee, which removed it. Dryness of mouth with thirst all d. Since then, for a d. or two, depression of spirits and disinclination to study. In writing these notes he kept repeating sentences and words. (BERRIDGE, *Hahn. Monthly*, iii, 461.)

4. Dec. 7th, 1866.—Mr. —, æt. 20 or 21, short dark hair, blue eyes. Took ʒj tincture in water, mixed with sp. ammon. arom., about 11 p.m. He read till about 1 p.m., then felt curious constrictive feeling in head, with inability to think. Dozed a little on sofa in friend's room; was heard chuckling to himself; woke every 5 m., when it seemed to him as if hours had passed. After friend had gone to bed kept waking up thinking he was still in room, but on rousing himself recollected all, then relapsed.

About 1.30 a.m. went to bed; could not concentrate mind on anything; if he tried to think of anything his mind wandered into fanciful ideas. Felt kind of stupor, as if bound down by a loadstone, so that he could not move. When in bed thought he was still in his friend's room (thinks he spoke to his friend and was cross because he received no answer, but of this he is not sure). Kept waking all n.; slept later than usual next m. This prover used often to take acetate of morphia subcutaneously for a joke! He had taken ⅛ gr. at 6.30 p.m. and again at 10 p.m. It never thus affects him. (*Ibid.*)

5. Dec. 17th, 1866.—Same prover took 5 gr. alcoholic extract at 10 p.m. 11.30 p.m., feeling of distension of eyeballs, as if starting out of head; they ached when he tried to read. Felt drunk. Some dryness of mouth, without thirst. At 2 a.m. took morphia subcutaneously; seemed to pervade whole system, gradually driving effects of C. before it. C. caused in him unpleasant sensation of body which he could not describe. (*Ibid.*)

6. Dec. 4th, 1866.—Mr. —, æt. 22, dark eyes, had taken spirit. amm. aromat. ʒj about 6 p.m., which caused slight headache. Took ʒj tinct. at 11 p.m. In 1 h. sleepiness, then singing in ears; then felt very jolly, bursting into laughter; talked nonsense and could not stop. His voice sounded to him long way off. A friend in same room seemed to him long way off. Felt as a third person looking at himself and friend. Felt he knew where he was and yet did not. Room seemed larger. Pleasant sensation of warmth, beginning in spine and extending all through body. After going to bed sensation of heaviness and drowsiness; could not lift arms or legs. When in bed knew where he was and yet not; imagined he was at home and could hear usual sounds; by strong effort could recollect truth, then again relapsed. When in bed had dryness of mouth, lasting until next m., with thirst. Frequent micturition at n., much in quantity. (*Ibid.*)

7. Dec. 9th, 1866.—Same prover took 70 minims, about 9.30 p.m. In 30 m. dryness of mouth with thirst, for some time. In 1 h. burning sensation in stomach for some time. Felt drunk. Giddiness, everything seemed turning round for some time. Buzzing in ears, lasting some time. In 1½ h. pains in forehead for some time. Great appetite; frequent micturition of much urine. In 2½ h. felt sleepy for some time. Leaden feeling in limbs, as though he could not move them, for some time. Conjunctivæ congested, without any abnormal sensation there. These symptoms lasted till between 2 and 3 a.m., when he took acetate of morphia subcutaneously, which removed them. They had, however, begun to diminish before he took it. (*Ibid.*)

8. Dec. 14th, 1866.—Mr. —, in good health, except a cold, took ʒj of tinct. at 4.20 p.m. 9.30, feeling of exhilaration. Pricking pains, apparently on surface of heart, off and on. Woke once in n., which is unusual. Next d. ʒij in gum acacia and syrup at 3.50 p.m. 5 p.m., blood-vessels of upper eyelids became very full and distended, with feeling of heat. 5.30 p.m., same symptoms, with slight soreness of upper eyelids. Scalp and skin of forehead felt tightly stretched over skull, as a bladder over jar. Intermittent headache, in spot l. side of head, near anterior inferior angle of parietal bone. Curious

shooting pain in l. arm, from shoulder to tip of middle finger, producing in finger feeling of internal soreness, same as in neuralgic pains. Pain at one time concentrated itself in pulpy part of ungual phalanx, and at another at upper part of axillary border of scapula, whence it seemed to radiate, like wheel-spokes, for distance of 2 in. 6.30 p.m., soreness of l. finger remains, not increased by pressure or use. Conjunctiva of eyes covered with distended vessels; feeling of burning heat, more marked in eyes than in lids, and severe. 7 p.m., less constriction of scalp; continuance of burning heat about eyes. 7.25 p.m., increased redness of conjunctiva. Very subdued feeling; marked taciturn tendency. 7.45 p.m., feeling of lightness or buoyancy, as though he could fall like a cork, without sustaining harm. Relaxation of muscular power. Other symptoms as before. 8 p.m., feeling of sleep; could easily sleep if he were to lie down and give way to the feeling; but when necessary could always rouse himself all through experiment. Feeling of relaxation continues; not at all inclined for physical exertion. Disposition to remain perfectly quiet without speaking. 8.30 p.m., bottle of lemonade revived him. 9.30 p.m., continued refreshed from the lemonade. 9.40 p.m., disagreeable effects began to subside, leaving a disposition to be silent and still. No headache; conjunctiva natural. 10 p.m., stronger disposition to sleep, which continued at 10.30. Same sensation at heart occurred during this proving as in former, but slighter. Woke at 4 a.m. and 7 a.m., which is very unusual. (Prover states that the eye symptoms come on him, but to a less extent, from anything which causes indigestion, as he considers it to be, *e.g.* from eating two suppers, extra glass of wine, smoking when not well, or from excessive doses of phosphate of iron. But, in this case, he could attribute it only to Cannabis.) (*Ibid.*)

9. Dec. 22nd, 1866.—E. W. B—, in good health, except slight cough. 2.55 p.m., ʒj tinct. At 4 p.m. was referring to MS. index of cases of poisoning, &c.; did not seem to know where to look for what he wanted; when found, read it over two or three times without seeming to understand it. Curious feeling in body and head, which he did not notice enough to describe. Knew it was effect of C., and felt alarmed lest he had taken too much. Then wrote down following symptoms. 4.8 p.m., feeling in head as of something going round in it, from before backwards, on r. side. This was transient. Feeling of pressure on both cheeks, in corresponding spots, about posterior border of malar bone; did not last long. Roused himself and could recollect all. 4.11, feeling for a few seconds as of something surging like waves up neck into head, seeming to try to press it forwards. 4.30, wanted to refer to something in his MS. Had to stop and think what he wanted to find, and where to look for it; had to think for some seconds before he could bring his mind to subject. 4.36, peculiar feeling of moving or "swimming" in head, with transient feeling of constriction round head. Lay down on sofa and dozed a little; singing in ears, went off when he got up. 4.50, feeling of something surging up from posterior part of head towards forehead. 5, dizziness in head. Felt drowsy, and fell asleep in armchair. At one time he tried to write down reference in his MS. Wrote down first half correctly,

though he felt he might write nonsense in state he was; on attempting to finish, did not know what he had to write, and could only do so by looking constantly at passage in printed book while he wrote it in MS., and even then he omitted something. After tea, 6.30, no more effects. (*Ibid.*)

10. "While in Paraguay, I took about 2 gr. of the extract sent over from England, about noon, breakfasted, and lay down for the siesta as usual. I woke in the midst of a wild, shapeless dream, in a state of extraordinary agitation and bathed in perspiration; instinctively I felt my pulse, and found it beating at a tremendous rate, but so feebly that I could not feel the impulse of the heart against the chest. I thought a severe attack of fever was coming on, but to my surprise my tongue was quite clean; thoroughly puzzled, I sat down and tried to make out what was the matter, but in vain, for my attention was principally occupied by a hallucination that *time was indefinitely prolonged.* I seemed to myself to have sat there for hours, and when I tried to think why I had done so I nearly lost all control over my reason, and a rapid whirl of confused and irrelevant thoughts prevented me from fixing my attention on one point for a moment, and it was only the effort of checking myself when falling which recalled me to myself, and then I suddenly recollected cannabis indica. But when did I take it? Surely it was yesterday—last week—days ago. Then with infinite trouble in confining my attention, I succeeded in reaching the conclusion that the best thing was to take an emetic, and then some strong coffee and brandy. I also remembered in a bewildered way that some native friends were to visit me that day, and feeling that I could not see them, I rang the bell for the servant, to give him directions about them. After an apparent delay of a few weeks he came, but I could not remember why I summoned him, and only that I had done so; and moreover, I felt that if I spoke to him I should only repeat some nonsense over and over again, so I stared at him in silence. He naturally thought from my wild appearance—pupils were widely dilated—and my strange behaviour, that I was mad; he turned pale—that is, in an Indian, pale green—and stammered out a few words. I was immensely amused at his scared look, and laughed long and heartily, yet never losing for a moment the feeling of intense anxiety with which I awoke. At last I so far succeeded in collecting my scattered senses as to give him directions. (Narrator then took a zinc emetic.) Feeling somewhat relieved, and placing some water to boil in a flask over a spirit-lamp, I sat down in my office and remained there apparently for weeks or months, feebly wondering why I did so, and if the water before me would ever boil, and what it was for when it did. I was aroused from my abstraction—if the whirl and dull confusion of thought could be called so—by the water boiling over, and then, with many pauses and periods of forgetfulness, I made a cup of strong coffee, and hastily swallowed it. I soon found myself better, and after some brandy and water I lay down and fell asleep. I could eat no dinner that e., but next d. was in my usual state of health." (Communicated by IBID, *Monthly Hom. Rev.*, xiii, 726.)

11. *a.* CHRISTISON took 1 gr. extract in spirit; at dinner, peculiar

numbness creeping through body and limbs. On lying down, numbness continued; in 15 m. sensations became agreeable. Laughed heartily several times, answered questions incoherently, immediately forgot what they were about. Delightful reveries came over me; whatever I looked at became lost in a maze; lamp seemed to turn slowly round; red lines on paper of room appeared to intertwine in most beautiful manner. Most remarkable effect was constant succession of new ideas, each of which was almost instantly forgotten. When roused to tea, ate ravenously, without feeling satisfied. Slept soundly at n.; next d. stupid and forgetful, better after lemon-juice.

b. Same took 4 gr. of extract for toothache. In 1 h. cessation of pain, pleasant numbness in limbs, giddiness, rapid succession of unassociated ideas, impossibility to follow train of thought, frequent intervals of sleep, slight increase in force of pulse. Felt no pain, but knew toothache was present. Next m. ordinary appetite, much torpidity, great defect and shortness of memory, extreme apparent protraction of time, but no peculiarity of articulation. This state lasted till 2 p.m., and ceased a few m. after lemonade. (*Monthly Journ. of Med. Science*, xiii, 34.)

12. At 4 p.m. man took 2 gr. of extract. 6.15, felt weak, chiefly about knees, slight inclination to laugh, stupidity, forgetfulness, no reverie. Slept soundly at n. Next d. perhaps more stupid, enlivened by lemonade. Not himself till following d. Appetite strong. (*Ibid.*)

13. Man took 2 gr. in spirit, and 1 gr. solid shortly after at 4 p.m. At 5.45, when at dinner, after water, felt buzzing in ears and slight giddiness. 2 m. later, burst into fit of laughter without cause, and had to retire owing to recurrence of such fits. Limbs could not support him; on lying down, delightful dreams—laughter at intervals. At 8 p.m. had tea, ate voraciously; lay down again, laughed and sang. Slept soundly. Next d. symptoms continued, but less, till afternoon. Lemon-juice had great effect in restoring faculties. (*Ibid.*)

14. I took between 2 and 3 grammes of haschisch, 9 a.m. In 15 m., peculiar movement in extremities, propagating itself towards interior of body. Felt as if something entered tips of fingers and moved progressively, and without interruption, to my brain, without, however, deranging intellectual faculties or producing pain. It was like sensation of nettles on skin, or ants moving over body, or titillation of sole of foot, but these do not exactly express sensation. Felt I was in abnormal state, and was contented. Wanted to work, but could not; my hands, affected by nervous excitement, refused to execute delicate movements. Near houses seemed removed to a distance, voices heard seemed to come from far. All distances seemed great, felt as raised from ground and walking through air, while persons in street touched the ground as my inferiors, and could not mount as I had done. Thought I should never reach home, distances seeming to grow. Portress, on hearing me speak, said, "His voice has changed." I answered, "It is effect of haschisch." Went in, left key outside in door. Wanted to open two letters, but nervousness hindered me, could only pass them between fingers and turn them for 2 or 3 m. At last, seized with supreme disdain for vulgar things, I flung them on ground as unworthy my thoughts.

Crowds of ideas came into mind, and grew clear and precise; nervous movement grew, agreeable feeling came on. When I had got into bed, clothes seemed to remove from my body, as sign of respect. Saw, to my great satisfaction, all events of my life pass before me; but ideas changed so rapidly that I could not dwell on single one. I knew of my state, but sought to corroborate it by proofs. Had doubts, and thought I was perhaps at work in laboratory, but this doubt passed like lightning, as I could get out of bed and walk—which I did; could go back to bed—which I did, having examined my clothes, looked at letters on floor, and noticed door shut and key outside. Clothes then seemed to remove again to distance, and same agreeable atmosphere surrounded me once more. This lasted 4 h., then ideas succeeded less rapidly, distances diminished, bedclothes respectfully approached me, nervous movement disappeared, and all resumed natural aspect, save that lips were less moist than usual. (De Luca, *Comptes Rendus*, Oct. 13, 1862.)

15. Took ʒj to feel effects. Was disappointed at first, thought I had taken chocolate only. Wanted to write letter; could not begin it. Parietal bones of head expanded widely, as if parting at sutures, and again collapsed with sort of shuffling sound. Thought it result of fatigue. "I will go to bed," I said. As I rose from table, agreeable state of warmth and lightness; felt as if I had taken Scotch whisky. Room seemed larger, and getting larger still; skulls of animals on walls became colossal, and I took them for monsters of Oolitic period; I thought I had been awestruck for years, looking at them paralysed, faculties benumbed except faculty of wonder. Saw my watch hanging on wall; it dispelled illusion. Looked at it calmly, found 20 m. since taking haschisch. Watch immediately expanded vastly, ticking like pulsation of a world. Now I knew I was under influence of drug, and began to take notes in pencil. Suddenly limbs seemed benumbed, toes shrank within slippers, fingers became like long legs of convulsed spider; I dropped pencil and walked to window. Landscape so sublime that I forgot cause of illusion. Horizon infinitely removed, still discernible; sunset had marked it out with myriads of fiery circles all revolving, mingling together, expanding and then changing to an aurora, which shot up to the zenith, and fell down in sparks and splashes among trees, which became illuminated; whole scene grand with fires of all colours. Landscape continued to expand. Trees shot higher; their branches overspread sky, met together, and became confused mass; lights changed to general purple haze; sense of twitching in every limb, with weariness and depression, made me turn and sit down. Twitching changed to sharp pricking, most in extremities; thought I was poisoned by strychnine. Opened drawer for emetic, but drawer had gone, and in its place sat one of my antediluvian monsters grinning. For six weeks—I then thought—it played a monotonous tune, while I sat on ground laughing and enjoying idea of my toes and fingers being claws, when suddenly thought seized me that I would destroy illusion by effort. I dashed at monster; my hand fell on handle of drawer. Dream was dissolved, I could understand that my watch ticking and bird singing in garden were sounds I had heard from monster. Looked

at watch, found 25 m. had elapsed since swallowing,—seemed years. I then said: "25 min., 25 days, 25 months, 25 years, 25 centuries, 25 æons. Now I know it all; I have discovered in dark ages elixir of life; I shall live for ever." Elixir seemed to whirl round me like wheel of which I was centre. Wheel became brilliant with fiery coruscations, by degrees centre (where I was) became circumference, and I was whirled with it, my head opening and shutting, could feel cold air on brain; breath got shorter and more difficult, chest falling in as if crushed by weight, stomach gnawed by rats. This went on for ages, yet I knew where I was, and how it all happened; actually ordered coffee, though illusion did not cease, nor did servant who answered me notice signs of aberration; thought coffee would relieve oppression, which was fast dispelling illusion. Tried to count pulse; throbs were like heaving of mountains; as I counted "one, two, three," they became "one, two, three centuries," and I shrieked at thought of having lived FROM all eternity and of going to live TO all eternity in palace of coloured stalactites, supported by shafts of emerald, resting on sea of liquid gold, for this was now appearance of things; gnawing at stomach suggested that I should be starved to death and yet live, the deformed wreck of a deluded man. Servant brought coffee in huge tankard chased all over with dragons that extended all round the world; I saw its odour play round her in circles of light, and for 1 h. she stood smiling and hesitating where to place it, because table was covered with papers. I calmly removed a few papers, and heaved a sigh that dissipated the dragons, made odours fall in shower of rain, and she put down tray with a crash that made every bone in my body vibrate as if struck by 10,000 hammers. She stood aghast, and her rosy face expanded to size of balloon, and away she went like lightning, and I stood applauding in midst of 1000 lamps, which I noted were all glow-worms, which I could touch, and they communicated to my fingers phosphorescent sparks, as if rubbed with matches. (A few days before I had found glow-worms in garden, and on handling them found my fingers tipped with dull, phosphoric glow. This probably gave rise to illusion. In fact, I afterwards traced many of my sensations to previous events; I almost believe illusions to be result of *abnormal memory*.) I knew this was unreal; drank coffee with composure, though difficult to pour it out without spilling; cup came to my lips as if it were rim of cauldron seething with stew of spices and nepenthe, and amid steam I could see into brain of Jacob Boehmen (whom I had read) as he now seemed looking into mine. Coffee caused sensations of insupportable heat. Gnawing sensation in stomach and contraction of chest gave way to sense of pricking, most violent in fingers and toes, and yet, though painful, pleasant. Though I could see that 40 m. had elapsed since taking drug, yet I had secret persuasion it was at least 40 centuries. Only one effect now remained,—sense of warmth of whole body and tendency of head to expand and fill room. Arms dropped; painful effort to keep them up. Went to bed. Could get there with difficulty, though legs very long, felt they would be presently cramped, so that I should cry out. On undressing, clothes flew away into space, and became stars, buttons on vest glittered like Orion, but more vast and splendid.

Did not dare look out of window; tried to control myself, for I began to feel sense of dread. As I got into bed, bed extended; as I lay down, I extended, and, on shutting eyes, I covered whole earth. Sense of indescribable pain all over; skin seemed to move to and fro upon flesh, head swelled to awful size, and I parted in two from head to foot; became two persons, each throbbing, breathing hard, sighing loudly, and lost in a commixture of ethereal yet agonizing colours and sounds. These seemed to continue for ages; but I was really asleep, and I never could call to mind at what time I went to bed, or at what point of illusion sleep came upon me, but I always supposed it to be when I felt myself parted in twain and immersed in light and music. Next d. was awake early, seemingly unrefreshed. I lay some hours pondering on strange effects drug had produced, and found it difficult for some time to prevent intrusion of some broken fragments of visions from taking possession of me; after breakfast, felt as well as usual. (SHIRLEY HIBBERD, *Intellectual Observer*, ii, 435.)

16. I had taken on different occasions gr. 1 to 3 of the extract, without any noticeable effect, and after repeating it several times increased the dose to 5 gr., from a new lot which we had just received. I took the dose after dinner, about 2 p.m., and as I had failed so often in obtaining its medicinal action in the least, I commenced my usual work in the laboratory, thinking no more about it, till ½ h. after, when I was suddenly reminded of it by a peculiar feeling I experienced that could be compared to a warm stream of water which gradually stole up my back and made its way to the brain. At the same time I had very dry mouth and fauces, so that I could hardly swallow or speak; intense and rapid beating of the heart, and widely-dilated pupils; my pulse was 150 to 160 per m.; I did not feel sick, but more as if under the effects of an intoxicating drink. By this time I felt a burning sensation in the throat, and mentioned it to my colleague, Mr. Dohme, who recommended me to take several drachms of birtartrate of potassa with water, which did me considerable service. I now felt in the highest degree nervous; my legs were hardly able to support my body, and I had a strong inclination to sleep, and therefore hurried to my bed, which I entered without undressing. I now began to feel the characteristic effects of the haschisch. I was not able to go to sleep, yet under a peculiar nervous action of the brain and senses; my mind wandered from one subject to another, and, strange to say, with my open eyes I dreamed (I must call it so), for I saw, heard, and noticed everything around me, but the mind wandered rapidly from one subject to another, only remaining for a moment or two on the same thing, then passed to another, and tales of youth again charmed my existence; pictures and scenes long since forgotten were again for an instant as plain as if seen only a day before. These dreams of imagination lasted about an hour, and then changed to a slight headache, which I felt till late in the night. I now got up to finish some preparation I had commenced in the morning, but found myself too weak and nervous, and had to leave the laboratory. At 6 I took supper, and had an excellent appetite, but my mouth was still very dry. At 12 o'clock I went

to bed, slept very quietly without dreams, and awaked in the morning as well as usual. (CARL BOWER, *Amer. Obs.*, May, 1864).

17. On August 5th, 1876, at 6.58 p.m., I took 0·6 of a gramme of Egyptian haschisch, and ½ h. after 0·4 of a gramme in addition. Before taking, pulse 72, at 7.10 pulse 80. First sensation, pendulum-like oscillations in the head. 7.20, pulse 84; a feeling of flow of blood towards the upper part of head, and a strange sensation of contraction, and a kind of collapse within myself; the pendulum-like oscillations in the head increasing. 7.40, an irresistible inclination to laugh; loud laughter without any particular cause, tendency to rapid movements; pulse 84. I took several quick turns up and down the room, and then sat down. 7.55, a feeling of heat and pricking in the head, sensation of coldness and numbness in the extremities, which are cold to the touch, and an indefinite feeling of melancholy and uneasiness; occasional starts without any visible cause, like those of electric shocks; pulse 96. Playing on the piano, performed by one of those present, produced a magical effect; it seemed as if the sounds were wafted from a great distance, that every sound had its peculiar life, a special fulness and expressiveness; the sounds seemed to come with fearful rapidity from an endless distance and to be reflected immediately in the ear—in a word, an ordinary performance seemed equal to that of some eminent pianist, and I thought myself a profound connoisseur, calmly enjoying the playing of some distinguished musician. 8.10, pulse 104, full; sensation of heat in the head and pricking in the temples increased. I seemed to hear a loud noise, like that of a waterfall; suddenly the nature of the noise changed, and it seemed to proceed from a number of vehicles driving in a street; then again the noise became like what is heard at the close of a performance in a theatre, the rumbling of vehicles, shouts of men—all combining in one general roar; these sounds suddenly disappeared, and gave place to the booming of cannon, and reports of guns at a manœuvre. I cut these sensations short by the force of my will, and took a quick turn in the room. I felt a violent thirst. After drinking a glass of water I sat down on the sofa, and closed my eyes at 8.30. Scarcely had I done so when I felt a remarkable buoyancy and flexibility in all my body; before my eyes appeared a whole series of variously tinted luminous figures, rapidly vanishing, their shapes being in the highest degree undefined; then appeared a row of more or less well-defined shapes. The most varied and most luxurious pictures of nature ever seen by me in reality or in drawings, transported me into a magical world; I thought I was in some virgin forests of South America, then in some cities of Switzerland, then amidst the ocean, and again amidst heaps of ice and snow, &c. An entire series of reminiscences of childhood, the faces of friends and acquaintances, and the faces (known to me by portraits) of authors, savants, poets, politicians, &c.,—all these became blended in my head, presenting a kind of phantasmagoria and the most variegated picture. All these sensations passed rapidly and distinctly before me, and I felt so enraptured that I begged to be allowed to plunge into this fantastic world, and to leave off dictating my feelings. This state lasted till 9.20. During this time those who were present observed that my face

was hot, red, and moist; pulse 108. On my recovery I got up with the intention of walking across the room, but noticed that my gait was unsteady, and that I was swerving to the left and that the upper and lower extremities of my left side were benumbed. I drank a little water and wine. At 9.45 I experienced sharp and occasionally shooting pains in the loins and in the region of the kidneys. These pains, as well as a feeling of nausea, made my state very uncomfortable. I endeavoured to induce vomiting by tickling the root of my tongue, but did not succeed. It was nearly midnight when I sat down to supper and ate with a great appetite. At 1 a.m. I went to bed, and my first sensation was that I was flying from an enormous rock into a fearful and dark abyss. I fell asleep at once and slept very soundly. It was 11.30 a.m. when I awoke with a feeling of heaviness in the head, with full remembrance of the previous day, and a sensation of emptiness and incapacity for thought. Whatever I did appeared endlessly long; my words, and the conversation of others, seemed too prolonged, whereas in reality it appeared that I spoke as usual. I went out into the street to take an airing, but the further I went the more it seemed to me that I was walking a very long time, and that the houses and people were all flying away from me. Making an effort over myself, I took the first vehicle, and drove back home. On my arrival I at once lay down, and slept till evening. On awaking I felt much better. The urine which I had collected during the experiment had a peculiar odour, somewhat like that of cannabis indica. During the d., according to my own observation and that of others, my face was exceedingly pale, the pupils dilated, the expression that of great illness. It was only on the next d. that I was able to take to my ordinary occupations. (MAXIMOVITCH, *Hom. World.*, May, 1877).

18. The following proving was made by a young friend of mine, a gentleman of good mind and considerable reading; of excellent moral character and worthy of the most implicit confidence.

a. Having taken 15 gr. of an American extract without effect, a week later he took, at 8 a.m., 3 gr. of an English one, expecting it to operate about noon. Nothing happening, he concluded that he had taken too small a dose, when about 4.30, while playing guitar amongst his family, "one of the tunes, a rather solemn one, seemed suddenly to assume a more melodious character, gradually increasing in grandeur bar after bar, till I was wholly absorbed with it. The words died away and I still went on with the accompaniment; my mind carried the air and all surrounding objects faded; I lived wholly in the music, and a deep subdued joyous feeling, such as I never before felt, pervaded my whole being. At last I came to myself somewhat and turned to the others, remarking that it was beautiful and asking if they did not think so. They were surprised at the question and said the air possessed but little merit. At this moment a strange crawling sensation commenced in my body, extending to my limbs, down my arms into my fingers' ends, and up into my brain, travelling slowly, but so powerful that I was wholly overcome with surprise." These thrills followed more rapidly and became more intense, especially when he moved to leave room. In going downstairs to put away guitar mind wandered and

had to be forcibly recalled, making time seem long; in going upstairs to his room he seemed not to touch steps, treading air as a swimmer treads water. Thrills were now continuous, commencing of each being only known by an increase in force; heart and arteries began to throb violently, and blood to rush to head, so that he feared apoplexy. "The uncertain aspect of things" (which he had already experienced) "now increased, with the whole force of my reason seemingly unimpaired. I could not convince myself that the furniture in the room had any other than an ideal existence. This feeling was so oppressive that I determined to seek the rest of the family. But how could I reach them? I was in another sphere; I had journeyed to a world whose objects I could not realize, an uncertain world whose paths I did not know. An atmosphere surrounded my little world through which I could not pass; to break through the open doorway seemed as impossible as to wing my way through the ethereal regions to the throne above. This was my station; here I must remain. A feeling of loneliness now overwhelmed me. I must seek the rest of the family. I hurled my body through the seemingly impenetrable though invisible barrier. On, on I went, pushing my way through a resistant atmosphere or surrounding—an adherent fluid it seemed to be, not dense as water nor rare as air, yet it resisted, and I by force of will overcame it step by step. I noticed here the two parts of my being acting separately; my will was separate from my body, spurring it onward, pushing it forward, and using it much as an artificer uses a tool, seeming to exult in its supremacy and glad of its partial disenthralment."

b. He now returned to the sitting-room, finding his family there, who assumed the same unreal aspect. When he spoke his voice seemed someone else's. He found he had been absent only 5 m., though it seemed to him as many h. Was told he looked pale, eyes half closed and dull, hands cold and clammy. He felt as if resinous matter exuded from every pore, lining mouth and throat and creating a great thirst. Drinking a glass of water, it seemed to run down throat by its own gravity and without touching either side. His thoughts were occupied with speculations as to the action of the drug (which he mentioned he had taken) and were now and then half involuntarily expressed, not always with seemliness. At last, family becoming anxious, a mixture of ether and camphor was given him. After its stimulation had passed off it left him extremely melancholy, which increased as day grew dark, but suddenly cleared away on going into lighted supper-room, where the lustre seemed to fill his whole soul. Thrills went off after meal while playing piano, but recurred for a fortnight on taking hot stimulants. (GARDINER, *Amer. Hom. Rev.*, iii, 411.)

c. In a later communication this prover (Dr. W. A. D. Pierce) tells his own story much as above, but continues as follows:—"The thrills left me suddenly, when in the middle of a tune, the last part of which seemed so flat that I was obliged to stop playing. My friends told me that I had been playing with more pathos than usual. For two or three weeks after this I felt once in a while, just as I fell asleep, a regular haschisch thrill, which would make me almost fear to wake, lest I should have a succession of them. For several months, in fact, for nearly a year

afterwards, I was troubled with a crisping sensation in the brain, just as I fell asleep or awoke from sleep; not every n., but probably once a week. My mind was capable of a greater effort for a while afterwards. During the succeeding week, I read a work on psychology of over 700 pages, and could for a long while refer to any part of it without my notes. This I could not have done before nor since. During the summer of 1866, I took some pellets saturated with the 30th cent. potency of C. indica, and in about an h. had a *real* haschisch thrill, so violent that I took hold of a counter to prevent myself from reeling, experiencing the same want of confidence in myself and anxious terror I had felt on taking the larger dose. Had a metallic taste on my tongue, and a slight exudation of resinous saliva, or rather mucus, from my tongue. These symptoms lasted but an instant. Sept. 8th, 1866.—Took 1 gr. of the resin and procured following symptoms during following two d.,—Itching in face, shoulder, abdomen, and feet, relieved by scratching. Frequent drowsiness. Drowsiness, with cold feeling of back of head and neck, as though air blew thereon. Fulness and heaviness in forehead, with pressure at root of nose and over eyes; headache over l. eye; dull hard pain in top of head; pain in back of head l. side. Seething or crisping of blood through brain, quick, like a flash of sheet lightning. Sensation as though muscles of face were drawn tightly around jaw. Drawings in muscles of mastication; stinging in r. side of face as though stuck with pins; leaves on scratching, but comes again immediately on another part of body. Slight pain at back of eyeball. Pain and singing in l. ear. Itching of nose continually. Pain in lower molar teeth r. side. Increased flow of thick, tasteless saliva. Slight but continual eructations of wind, tasteless. Pain in pit of stomach; nervous grumbling sensation in stomach, coming on every few moments, and extending up into thorax. Disagreeable flatulent rumbling in the bowels at n. when lying down. No desire to urinate (1st d.). Continual desire to urinate (2nd d.). Cold feeling in small of back and between shoulders. Sensation as though a red-hot iron rod was passed from sacrum up spine to the atlas, around occiput, over eyes from r. side stopping at l. ear, leaving a feeling as if charred, taking 6 h. to perform the passage. Pain in front of arm and back of elbow. Itching of sole of foot; pain and itching in l. leg just above knee. Nervous, restless feeling over whole body. Feeling of warmth over front of body and arms; sweat on front of limbs, and moist feeling of whole body, especially front; moist warmth of palms of hands.

d. Dec. 2nd, 1868, 11 o'clock a.m. Took 2 gr. Squire's extract of C. indica. Shortly after, cold feeling in stomach, very disagreeable, as though I had drunk cold water. From 1 to 2 p.m., frequent empty eructations of wind flavoured with C. 10 p.m., sharp pain in r. side of head, running from inner canthus of eye up back and out. Pain from bottom of orbit through brain and in ear. All afternoon had headache, pressing outwards over eye. Viscid mucus on tongue over whole upper surface. Tongue and throat has a dry feeling, but no particular desire for water. Aching pain in leg, near l. external malleolus, while lying on back, not when lying on side. 4th, 9 a.m., an icy coldness across

root of nose, comes on when leaning forwards writing, goes away when moving about. 11 a.m., boring pain in r. parietal protuberance.

e. Jan. 13th, 1869, 6 a.m.—Took 3 gr. of same. Immediately on lying down again disagreeable rumbling in abdomen, as though looseness was coming on. Singing in l. ear. Stinging pain in l. ear. Boring pain in r. ear. Boring pain in r. lower molar teeth, better from pressure, worst from grinding them together. Bone pain in metatarso-phalangeal joint of r. foot. Cold burning (as from turpentine) in vermilion border of lip and point of nose, l. side. Heavy frontal headache, in brain, more to l. side. Warm tingling sensation over whole l. side of face. Cool burning stinging in inner corner and canthus of l. eye and adjacent side of nose. 9 a.m., boring pain immediately above and back of r. ear. Dull pain in r. lower molar teeth. Stinging burning, as of a blister, on back part of tongue, r. side, at anterior pillar of fauces. Dry, feverish feeling of l. nostril. 10 a.m., pain in r. upper jaw, at root of first molar tooth. 3 p.m., a well-marked burning line from lip to chin, straight down l. side, as though it were a cicatrix. 14th.—Was wakeful all n.; mild pleasant dreams; cat naps. 6 a.m., before rising, considerable collection of thick mucus on tongue; tongue feels dry, as if scalded. 4 p.m., pain very severe in outer edge of trapezius muscle. (*Am. Journ. of Hom. Mat. Med.*, N.S., i, 11.)

19. About 3 p.m. I ate 3 or 4 dried buds of "gunjah," each being the size of a small nut. About 6 p.m. I felt a most unusual thrilling sensation passing through arms and chest, reminding me of the effects of a very weak induction current. The thrill gradually extended itself till it became general; in fact, the usual symptoms of hemp intoxication had begun. I was immediately seized with an irresistible desire to be alone, and left my friends on some excuse, and went out of doors. After the first few breaths of fresh air, the tingling sensation increased most pleasantly, and I walked at the rate of 5 miles an h., for I felt that I must walk. When I had walked 200 yards, all feeling of touch seemed to have disappeared. I felt as if my body was composed of some immaterial essence, through which the blood, which seemed to be a shade less immaterial than the rest of the frame, was coursing rapidly. It seemed to me as if my veins, arteries, and blood had been suddenly endowed with feeling. Sometimes I fancied I could almost hear this extremely pleasant tingling of every fibre of the body. When I reached the park I sat down to enjoy my pleasurable sensations. The sense of touch had already disappeared or, rather, become modified. I touched nothing, felt nothing; I accidentally struck my hand violently against a post, but though the blow left a large bruise behind it I did not feel it; all I knew was that my hand had been stopped in its movements on something. About this time my sense of time and distance left me. I seemed to have lived centuries since I left my friends. How long I really sat enjoying myself I know not, but it at last occurred to me that I had better take the train home. I rose from the seat, and instantly found myself in a chemist's shop at the further end of a street asking for lemonade. The chemist left the shop to get it, and after he had apparently stopped away about ten h., I rushed out of the shop, cursing his dilatoriness, for I was very thirsty. I sped along the street

at a furious pace, threading my way in and out the crowd most cleverly. All this time the thrilling sensation continued to increase, and everything I looked at seemed to glisten before my eyes. Presently it again occurred to me that I was thirsty, and I turned into a confectioner's, and asked for some tea. I had at first intended taking claret and water, but I thought the alcohol might interfere with the experiment. I sat down on nothing, laid my arm on a marble table made of nothing, and my feet touched nothing as they rested on the floor; everything was etherealised. My pulse was not quickened, and the thrilling seemed to keep time with it. I was pretty warm, owing doubtless to my violent exercise. My brain was perfectly clear, and I debated with myself a long time whether I should take the tea that was brought to me or not, not knowing what a disturbing effect it might have on the hemp. I argued, however, that all it would do would be to decrease the violence of my symptoms, which were increasing in strength every moment. In order to see how far my brain had been affected, I took up a paper, and found that by a very slight effort I could cease taking cognisance of the thrills, and read and understand what I read with perfect ease, though the letters glistened every now and then with great brilliancy. I could also write with perfect steadiness. I tried numerous experiments with my memory and will, and found them both obedient; the latter, however, was exceedingly skittish. My hearing, smell and taste were unaffected, except that near sounds seemed to come from an enormous distance. After leaving the shop, my sensations, though perfectly pleasurable, became somewhat alarming. What if I had taken too much! What if I should die! Prudence dictated an antidote, but I did not know of one. Who did? Running through the list of my medical friends, it struck me that Dr. Lankester (the coroner) would be the best person for me to go to; so I set off to his house at a furious pace, longing to be able to tell everybody I met that I was in an Indian hemp paradise. Had I been alone, I know I should have hurrahed or laughed boisterously, but I managed to restrain myself. When I neared his house, a most absurd thought entered my head. What if I died in Dr. L—'s presence! How in the name of all that was ridiculous could he, as coroner, possibly summon himself before himself, and listen to his own evidence as to the cause of my death? This was a little too much for me, and I laughed loudly and wildly till the tears ran down my face. When I recovered from my fit of laughter I gave up all ideas of antidotes. A wonderful change had taken place, the thrilling had diminished, and my brain had actually split into two halves, one of which was perfectly sane and the other in possession of the demon of hemp. I once more started for the train, my mad self thinking the most ridiculous thoughts, and continually urging my sane self to commit absurdities. I had an almost irresistible impulse to pull young ladies' hair, to shriek in old gentlemen's ears, or to bonnet young ones, all in the purest good nature. After battling in this way for about 2 or 3 h. I at last found myself sitting quietly, my mad half thinking endless absurdities and my sane half quietly enjoying the fun. The gentle throbbing still continued, and appeared more audible than ever, and there was a slight oppression of the chest that found vent in

a heavy sigh now and then. The oppression manifested itself rather by a feeling of warmth in the locality of the diaphragm than by any positive pressure. The clock struck 7 p.m. and my train left at 7.30 p.m., so I stepped at once from where I was into the station, which was really some distance off. This was the second occasion upon which time and space had become annihilated, and on both I had felt the need of extrême haste. At the station I met a friend, and we stood conversing at the carriage door for at least 10 m. My mad self was put down for the time, and my sane self exerted all his power. My friend noticed nothing strange in me. I found that I could read, think, and speak with perfect ease, in spite of the gambols of my madder half, and of the audible thrilling, the warm diaphragm, and the pleasant weight on my chest. My ride home in the train was most enjoyable; the rattling of the carriages and the puffs of steam from the engine seemed to keep time with the throbbings of an immense soft ball of etherealised velvet inside my chest, the pleasant thrilling of my whole body still keeping up, but somewhat more feebly. The mad fellow at my side was particularly ridiculous and entertaining. Towards the end of my journey he became very confused, and would only half think his absurdities, breaking off in the middle in a very tantalising manner. Then came a period when he would think his thoughts over and over again, when he was in fact afflicted with a fit of mental stammering. I remember that it occurred to the sane man that the mad one had suddenly turned into a mental Dundreary. Then it struck one of us—I do not well know which—that Sothern must have thought out his great character under the influence of haschisch. All this time I felt no pain or inconvenience. I had a mad fellow sitting by my side who amused me infinitely. My brain, so to speak, was polarised, and my veins ran with perceptible blood, both veins and blood being as ethereal and incorporeal as a halo. When I arrived home I was still enjoying my sensations, and had them more than ever under my control. I met my wife coming down the road with a scared face, and the thought instantly struck me that she knew all. Could my friend who gave me the drug have telegraphed to her? While I was asserting my superiority over my mad companion she said, "I have had such a fright. What do you think Willie has been eating?" "Good heaven!" I cried, utterly thrown off my balance, "What! Not haschisch?" "No, only blacklead," was the reply. This was the only time that I lost control over myself. My abnormal feelings gradually left me; my blood became silent again and my veins sensationless; the weight gradually left my chest, and the two halves of my brain coalesced. The rest of the e. I spent in perfect calm both of body and mind. I felt no other effects save the pleasurable feeling that one experiences after a very pleasant dream. (*Chemist and Druggist*, xi, 34.)

20. 10 gr. of haschish—it was an extract obtained from Hering, of London—were taken at 4 p.m. By 5 an indescribably "queer" feeling prevaded the whole body, and the experimenter started at once for his hotel. While going along a plank walk—just one board wide—every now and then, and suddenly, the r. leg would shoot to the l., missing the plank. After observing this muscular freak a few times,

the attention was centred upon locomotion, with a view of preventing a repetition of the erratic mis-step. Out shot the leg again and again, defying volition, and invariably going over to the l. On reaching the hotel, the friend who had supplied the haschisch was sitting on the piazza with three companions, all of whom were known to the experimenter. An ordinary conversation was going on, to which we listened, and soon found ourself filled with surprise that we should have known the parties talking for so long a time, and never before have perceived how very witty they were. The desire to laugh at every remark made because it was so funny was repressed only because none of the others laughed. A sense of vague uneasiness and considerable oppression of the chest led us to call our friend aside, tell him the haschisch was taken and ask to go at once to his room. Mounting the stairs increased the chest oppression and flushed the face. After lying upon the bed a dryness in the throat led to a request for water, which our friend went to obtain. When he returned and stood by the bedside with it, he was greeted with a shout:—"Whoop! Stand from under!" "What is the matter?" he inquired. The sound of his voice dispelled the illusion that the experimenter was a pump-log through which a stream of hot water was playing, and threatening the friend with a wetting. The deepening flush on our face alarmed our friend, who closed the window blinds, and, advising us to go to sleep, left the room saying he would soon be back. Finding our eyes closed on his return, he leaned upon one elbow on the bed beside us, and bending over said, "Doc." We lay quiet, opened our eyes, and exclaimed very emphatically: "Take care! You're spilling me!" "What is the matter with you?" he replied, still leaning heavily on the bed. "Stupid, you will spill me!" was the answer. "You're fooling: What's the matter with you?" "Don't you see I'm an inkstand, and you'll have the ink all over the white counterpane?" "You're no such thing" was the equally emphatic reply of our friend. In the person of an inkstand, we opened and shut our brass cover—it had a hinge—shook ourself, and both saw and felt the ink splash against our glass sides; and, angry at our friend's incredulity, turned with our face towards the wall, and would not speak a word with him. Then we very soon fell asleep, and did not awaken until late next m. While our illusions were very real, we were still conscious that they were silly and unreal; that is, the sense of their unreality would come in a m. or two. An oppression of the chest, as if suffocation would surely supervene, was exceedingly disagreeable; and when we had fallen asleep the deeply flushed face alarmed our friend. He afterwards said the sleep was like that of one "dead drunk." For a long while after we were annoyed and alarmed by pains about the heart; and with our present vague recollection of them we would not like to repeat that dose of haschisch. For fully two weeks after, when sitting in our office in the quiet summer afternoons, reading desultorily, we would hear most magnificent harmony, as if some master hand were playing an organ and using only the softer stops. There was this peculiarity about the hearing of the music, namely, one must be in a state of half reverie, and then the divine strains, soft and marvellously sweet,

followed one another in a smoother legato than any human "fingering" ever accomplished. If one roused the attention and strained the ear as if to be sure of catching every chord—silence came at once. (S. A. JONES, *N. Y. Journ. of Hom.*, ii, 368.)

21. *a*. One of our companions, Dr. —, who had travelled much in the East, and was a determined opium eater, was the first to yield to the influence of the haschisch, having taken a much larger dose than the others. He saw stars in his plate, and the firmament in his soup-dish; then turning his face to the wall, talked to himself, and burst into fits of laughter, with eyes flashing, and in the highest state of glee. I felt perfectly calm until dinner was over, although the pupils of the eyes of my other friends began to sparkle strangely, and acquire a most singular turquoise tint. The table being cleared, I (still having my senses) arranged myself comfortably with cushions on a divan to await the ecstasy. In a few m. a general lethargy overcame me. My body appeared to dissolve or become transparent. I saw the haschisch I had eaten distinctly within me, under the form of an emerald from which thousands of little sparks were emitted; my eyelashes lengthened indefinitely, twisting themselves like golden threads around little ivory wheels, which whirled about with inconceivable rapidity. Around me were figures and scrolls of all colours, arabesques, and flowing forms in endless variety, which I can only compare to the variations of the kaleidoscope. I still occasionally saw my companions, but they appeared disfigured—half men, half plants; now with the pensive air of an ibis, standing upon one leg, and again as ostriches, flapping their wings and wearing so strange an appearance that I shook with laughter in my corner; and, as if to join in the buffoonery of the scene, I commenced tossing up my cushions, catching them as they descended, and twisting them round with all the dexterity of an Indian juggler. One of the gentlemen addressed a discourse to me in Italian, which the haschisch, by its extraordinary power, delivered to me in Spanish. Questions and answers were most rational, and touched on different matters, such as the theatres and literature.

b. The first stage drew towards its termination. After some m. I recovered my calmness without headache, or any of the symptoms which accompany the use of wine, and feeling very much astonished at what had elapsed, when I again fell under the influence of the haschisch. The vision this time was more complicated and extraordinary. Millions of butterflies, whose wings wafted like fans, flew about in the midst of a confused kind of light. Gigantic flowers with crystal calices, enormous hollyhocks, gold and silver lilies, arose and burst into flowers around me with a crackling sound like that of bouquets of fireworks. My hearing was prodigiously developed; I could hear the *sound* of colour—green, red, blue, and yellow sounds struck me with perfect distinctness. A glass upset, the creaking of a chair, or a word spoken, however low, vibrated and resounded like rolling thunder; my own voice appeared so loud that I durst not speak for fear of throwing down the walls or bursting like a bomb; more than 500 clocks chimed the hour with their flute-like voices. Every object gave forth a note of the harmonicon or Æolian harp. I swam in an ocean of sound, wherein

some passages of the "Lucia" and "Barbière" floated like little isles of light. Never before had I bathed in such beatitude. I was so encircled by its waves, so transported from all things earthly, so lost to self—that odious ever-present witness—that I comprehended for the first time what might be the existence of elementary spirits and angels, and souls released from this mortal coil. I was as a sponge in the midst of the sea; every instant waves of happiness washed over me, entering and departing through the pores; for I had become permeable, and even to the smallest capillary vessel my whole being was filled with the colour of the fantastic medium in which I was plunged. Sounds, perfumes, and light reached me by multitudes of beams, delicate as a hair, through which I heard the magnetic current pass.

c. According to my calculation this state must have lasted for 300 years, for the sensations succeeded each other so rapidly and potently that the real appreciation of time was impossible. When the attack was over I perceived that it had lasted ¼ h. What is very curious in the intoxicating effect of the haschisch is, that it is not continuous; it comes and goes suddenly—raises you to heaven, and places you again on earth, without any gradual transition. Like madness, it has its lucid intervals.

d. A third attack, the last and strangest, terminated my Oriental soirée. In this, my sight was doubled. Two images of each object were reflected on my retina and produced a complete symmetry; but soon the magic paste, being entirely digested, acted with more power on my brain, and I became completely mad for the space of an h. All kinds of Pantagruelic dreams passed through my fancy; goatsuckers, storks, striped geese, unicorns, griffins, nightmares, all the menageries of monstrous dreams, trotted, jumped, flew, or glided through the room. These wore horns terminating in foliage, webbed hands; whimsical beings, with the feet of the armchair for legs, and dial-plates for eyeballs; enormous noses, dancing the cachuca, mounted on chickens' legs. For myself, I imagined I was the paroquet of the Queen of Sheba, and imitated, to the best of my ability, the voice and cries of that interesting bird. The visions became so grotesque that I was seized with a desire to sketch them, which I did in 5 m. with inconceivable rapidity, on the backs of letters, cards, or any piece of paper on which I could lay my hands. One of them is the portrait of Dr —, as he appeared to me, seated at the piano, dressed as a Turk, with a sun painted on the back of his vest. The notes are represented escaping from the instrument in the form of guns and spirals, capriciously intertwisted. Another sketch bears this inscription: "An Animal of the Future." It represents a living locomotive with a swan's neck terminating in the jaws of a serpent, whence issue jets of smoke, with two monstrous paws, composed of wheels and pulleys; each pair of paws has a pair of wings, and on the tail of the animal is seated the Mercury of the ancients, who is confessing himself to be conquered, notwithstanding his heels. Thanks to haschisch, I have painted from nature the portrait of a goblin. Even now I fancy I hear them whining and mowing at night in my old beauffet. (THÉOPHILE GAUTIER, in Brierre de Boismont's *Histoire des Apparitions*, &c.)

22. *a.* At Damascus, 1852. Took a teaspoonful of paste, made from the dried leaves of C. indica, sugar, and spices, soon after dinner in the e., letting it dissolve slowly on the tongue. After the lapse of an h. no change in feelings. Took another half teaspoonful, followed by a cup of hot tea. Not long afterwards a fine nervous thrill shot through me, accompanied with a burning sensation in epigastrium. It shot, throbbing along the nerves, to the extremities of the body. The sense of limitation—confinement of one's senses—instantly fell away. The walls of my frame were burst outwards and tumbled into ruin; and without thinking what form I wore—losing sight even of all idea of form—I felt that I had existed through a vast extent of space. The blood pulsed from my heart sped through uncounted leagues before it reached to my extremities; the air drawn into my lungs expanded into seas of liquid ether, and the arch of my skull was broader than the arch of heaven. Within the concave that held my brain were the fathomless deeps of blue; clouds floated there, and the winds of heaven rolled them together, and there shone the orb of the sun. All sensations, as they arose, suggested more or less coherent images. They presented themselves to me in a double form; one physical, and therefore to some extent tangible; the other spiritual, and revealing itself in a succession of splendid metaphors. The thrills which ran through my nervous system became more rapid and fierce, accompanied with sensations that steeped my whole being in unutterable rapture. I was encompassed by a sea of light, through which played the pure, harmonious colours that are born of light. I fancied myself at the foot of the pyramid of Cheops. I wished to ascend it, and was immediately there. Looking down it seemed built of plugs of Cavendish tobacco. Other and more wonderful illusions arose. I was moving over the desert in a barque of mother-of-pearl and studded with jewels of surpassing lustre. The sand was grains of gold, and my keel slid through them without jar or sound. The air was radiant with excess of light with no sun in view, and full of delicious perfumes, and harmonies floated around me. I revelled in a sensuous elysium, which was perfect; and beyond all I was filled with a boundless feeling of triumph over the grandest as well as subtlest forces of nature. My feelings took a warmth and glow from that pure animal joy which degrades not, but spiritualises and ennobles our material part. The barque of pearl, the rainbows, the desert of golden sand vanished, and I was in a land of green and flowery lawns, divided by hills of gently undulating outline. But there was no water; all were asking for water. Honey was drawn up in dripping pitchers.

b. A remarkable fact was, that while I was most completely under the influence of these illusions, I knew myself to be seated in the tower of Antonio's Hotel in Damascus, knew that I had taken haschisch, and that the gorgeous and ludicrous fancies were the effect of it. While gliding over the valley of the Nile and over the desert I saw the furniture and the mosaic pavement, the niches, the ceiling, and the couch, and my companions in the room. Both sensations seemed simultaneous and equally palpable. I felt the absurdity of my illusions. I was double, not "swan and shadow" but rather Sphinx-like, human and beast.

c. Later, the drug, which had been retarded by the influence of the dinner, began to make itself more powerfully felt. The visions were more grotesque and less agreeable; and there was a painful tension throughout my nervous system. I was twisted into various shapes, according to the ruling fancy, and yet convulsed with laughter at my own ridiculousness. Later still, my perceptions became more dim and confused—I felt that I was in the grasp of some giant force and grew earnestly alarmed at the terrible stress under which my frame was labouring more and more. A fierce and furious heat radiated from my stomach throughout my system; my mouth and throat were dry and hard as if made of brass; and my tongue seemed as if a bar of rusty iron. I seized a pitcher of water and drank long and deeply; but I might as well have drunk so much air, for not only did it impart no moisture, but my palate and throat gave me no intelligence of having drunk at all. I stood in the centre of the room brandishing my arms convulsively, and heaving sighs. "Will no one," I cried, "cast out this devil that has possession of me?" I no longer saw the room, nor my companions, but I heard one of them saying, "It must be real; he could not counterfeit such an expression as that; but it don't look much like pleasure." In my ignorance I had taken haschisch enough for six men, as I afterwards learned. The excited blood rushed through my frame with a sound like the roaring of mighty waters. It was projected into my eyes until I could no longer see; it beat thickly in my ears, and so throbbed in my heart that I feared the ribs would give way under its blows. I tore open my vest, placed my hand over the spot and tried to count the pulsations; but there were two hearts beating, one at the rate of a thousand beats a m., and the other with a slow dull motion. My throat I thought was filled with blood, and the streams were pouring from my ears. I felt them gushing warm down my cheeks and neck. With a maddened, desperate feeling I fled from the room and walked over the flat terraced roof of the house. My body seemed to shrink and grow rigid as I wrestled with the demon, and my face to become wild, lean, and haggard. I fancied my head a fleshless skull; I was tempted to leap from the parapet, but something pushed me back. I made my way back to my room in a state of keenest suffering. I was sinking deeper and deeper into a pit of unutterable agony and despair. The nerve-tension gave me a sensation of great distress. My will seemed to grow weaker—I felt I should soon be powerless in the hands of the demon. I had a mortal fear of insanity. I threw myself on the bed with the excited blood roaring wildly in my ears, my heart throbbing with a force that seemed to be rapidly wearing away my life; my throat dry as a potsherd and my stiffened tongue cleaving to the roof of my mouth—resisting no longer, but awaiting my fate.

d. The calls of my companion for help from me I was conscious of, but they only made me angry; but, after a time, my senses became clouded and I sank into a stupor. This was about 5 h. after the haschisch began to take effect. I lay thus all the following d. and n., in a state of grey, blank oblivion, broken only by a single wandering gleam of consciousness. Unconsciously I arose, attempted to dress,

drank two cups of coffee, and then fell back into the same death-like stupor. On the m. of the 2nd d., after a sleep of 30 h., I awoke again to the world, with a system utterly prostrate and unstrung, and a brain clouded with the lingering images of my visions. I knew where I was and what had happened to me, but all that I saw still remained unreal and shadowy. There was no taste in what I ate, no refreshment in what I drank, and it required a painful effort to comprehend what was said to me and return a coherent answer. A bath and acidulated drink helped to restore me; but for several d. I had spells of mental absence, so that slowly my double life disappeared. For some time I had no courage, nor energy for days. (BAYARD TAYLOR, *Lands of the Saracen*, p. 133.)

23. Mr. Carter Harrison, the travelling companion of Mr. Taylor, at same time and in like doses took the haschisch. No mention of his symptoms, objective or subjective, is made till about midnight, when Mr. Taylor says: "There was a scream of the wildest laughter, and my countryman sprang upon the floor, exclaiming, 'Oh, ye gods! I am a locomotive!' This was his rulling hallucination; and for the space of 2 or 3 h. he continued to pace to and fro with a measured stride, exhaling his breath in violent jets, and when he spoke dividing his words into syllables, each of which he brought out with a jerk, at the same time turning his hands at his sides, as if they were the cranks of imaginary wheels. Later, he cried out to me that he was dying, implored me to help him and reproached me vehemently, because I lay silent, motionless, and apparently careless of danger." Mr. Harrison recovered more rapidly than Mr. Taylor. (*Ibid.*)

24. I took 40 min. of tinct., which caused little more effect than inclination to rub eyelids and some indisposition to exertion. Next d., took 80 min.; my spirits in an h. afterwards were much elevated; eyelids felt œdematous; imagined that some object was near to me which was not in room, so much so as to start from my seat under the delusion; pulse, usually 70, was 90; I was obliged to feel it several times in order to ascertain it. The most marked effect was that my recollection (not memory) intermitted regularly about every 2 m., so that while in conversation I was obliged to stop speaking, from a momentary total loss of the subject, but the link would be perfectly restored when 2 or 3 m. had elapsed. In 4 or 5 h. this phenomenon gradually disappeared, and was succeeded by a sense of languor and great inclination to assume the lowest possible horizontal position, accompanied by sensation of being bitten in many parts of the body by some insect. There was most disagreeable feeling of distension (as if with water) in abdomen; all secretions increased, and especially from mucous membrane of bronchi. Feeling of distension lasted several d. (CROSSE, *Prov. Med. and Surg. Journ.*, 1843, p. 171.)

25. I have often taken from 20—30 dr. of the ethereal tinct., and generally, in ¼ h., feeling allied to early stage of intoxication came on; ideas passed with great rapidity; everything was then forgotten, and usually a hearty laugh followed, whole occupying a m. No effect would then be felt for 3—5 m., when same symptoms recurred. After 3 gr. of extr., above feelings came on in ½ h.; after 1 h., alternating

states were marked by cheerfulness and depression. I felt myself getting more and more bound; I intensely tried to throw off the load, to command my thoughts, but could not. This state continued more or less for 1 h., with no inclination to move. A sudden but slight giddiness came on; a desire to drink something cold. I took a glass of cold water, and was suddenly impelled to run round room on hands and knees, and in this way got to front door, instinctively seeking cold. This fit lasted 2 m., when I recovered perfect consciousness for about same period, and again was impelled to same actions. I was less lost in succeeding fits than in first; lucid intervals were also less distinct. I roamed ½ h. on hands and feet in open air, all the time conscious of what I did, but without desire to do otherwise, actions being instinctive. After this, for 10 m., I recovered, re-entered house, explained cause, and went off in hysterical laughing and crying for a few m. For 1 h. after this I suffered great susceptibility of mind, was distressed beyond measure at any suggestions my friends made as to coming into the house, &c. This sensitiveness was the most striking of the phenomena. I most earnestly implored in the softest whisper that no request or suggestion should be made. Loud speaking was too great an effort. The rapid thoughts, in most confused order of succession, so instantly forgotten, were very painful. I made strongest efforts to fix attention to some train of thoughts in mind, or in conversation with another, but without avail. This state lasted 1 h. ("M.D.," *Med. Times and Gaz.*, iv, 273 (1852).)

26. Several pupils (of the Calcutta Medical College) tried resin on themselves. The result of several experiments was that in doses of gr. ¼ pulse was increased in fulness and frequency, surface of body glowed, appetite became extraordinary, vivid ideas crowded mind, unusual loquacity occurred, and, with hardly an exception, great aphrodisia existed. One pupil took 10 dr. of tinct. = gr. ¼ of resin. In 20 m. a shout of laughter ushered in the symptoms, and cataleptic rigidity occurred for 2 or 3 m. I found him enacting the part of a rajah, giving orders to his courtiers; he could recognise none of his acquaintances, all to his mind seemed as altered as his own condition; he spoke of many years having passed since his student days, described his teachers and friends with a piquancy which a dramatist would envy, detailed the adventures of an imaginary series of years, his travels, his attainment of wealth and power; he entered on discussions on religious, scientific, and political topics, with astonishing eloquence, and displayed an extent of knowledge and reading, and a ready apposite wit, which was quite unexpected. For more than 3 h. he maintained the character he at first assumed, and with a degree of ease and dignity perfectly becoming his high situation. This state ended as suddenly as it commenced. (O'SHAUGHNESSY, *Prov. Med. and Surg. Journ.*, 1846.)

a. At 8 p.m. took 6 gr. of "Hering's alcoholic extract of cannabis indica." At 9 went to bed, feeling as well as usual. At precisely 12 p.m. awoke suddenly and fully. Room was dark, still location of every article about me seemed perfectly plain; I could read titles of books upon a table 12 or 15 feet off. Although urine had been voided on retiring a great desire was felt to pass more, which I essayed to do, but

could scarcely retain it until the vessel could be got ready. The length of time occupied in urinating seemed days instead of seconds. As much was passed as is usually collected during whole n. As soon as I had accomplished this feat, for it seemed indeed a great undertaking, the clairvoyant-like vision left me, and I felt unable to raise my hands, the feeling being as if a weight was upon my forearm. The head felt light, the mind remarkably active, and yet apparently sluggish. Had a feeling of duality. One of my minds would be thinking of something while the other would laugh at it; a quick transition of the ideas of one mind to the other. I laughed at the idea of laughing and could not control myself. I closed my eyes and tried to think of something solemn. Suddenly I felt as if I were a marble statue. I had no ability to move, and a chill ran over me. By a great exertion I moved my hand and felt my face; it felt hard; there was no sensation in the face, but to the hand it felt stony. I made an effort to throw it off by getting out of bed, and by a determined will I looked at my watch; it was 10 m. past 12. I lay down in despair; only 10 m. had elapsed, and I thought days or at least hours had gone by. My pulse began to throb heavily and my head to be dizzy. I sprang from my bed like a maniac and struck a light, took my watch and began to count my pulse, just one beat at each second; but when the m. had elapsed I could not remember how many I had counted. I again went to bed, and fell asleep. In m. my eyes were swollen and inflamed, pupils contracted, head dizzy. A cup of strong coffee relieved the dizziness. During d. was occasionally absent-minded and dreamy, but otherwise was as well as usual.

b. At another time, 9 a.m., I took 10 gr. of the same extract, and in exactly 4 h. I felt the characteristic *thrill* produced by the drug. This time I took more particular notice of the results, and also had the assistance of others to note my actions. The same apparent clairvoyance was present, that is, I saw, or fancied I saw, articles in another room, but the sensation was of short duration. The symptoms already described were present. As I attempted to walk my feet felt heavy, my hands were with difficulty raised, the forearm felt as if kept down by weights. A slight dry cough troubled me. I had great craving for water, but a single swallow passing down my throat gave sensation as of holding my mouth under a cataract; a spasm came upon me with a sensation of fear or dread, but this was only for an instant. My mouth was dry and frothy. The cough became harder, but still dry, almost like a bark. I had a discharge from bowels about 1 h. after feeling "thrill" spoken of and in ½ h. another. They were thin, yellow, and painless. The diarrhœa increased, a heat pervaded the abdomen internally, and frequent discharges of this kind followed, but entirely without pain.

c. Frequent trials were made with the drug, each time increasing the dose, until the last, when 56 gr. were taken. The same general symptoms were present each time, except that the last dose did not have any effect.

d. A large number of my friends (about 30) tried the drug, most of them under my eye, and the same result was invariably obtained, viz. clairvoyance; heaviness of the forearm and feet; hard, dry cough;

desire for and dread of water; some had tetanic spasm at moment water was taken, others had some frothing at the mouth. A painless yellow diarrhœa was present in *every* case; eyes dull and swollen; heavy frontal headache; loss of appetite. All persons were relieved of their symptoms as fast as the effect of drug had passed off, which was usually in from 10 to 24 h. One or two were a little constipated for a few d. Coffee almost instantly relieved headache following. Some had great fear, at times, of things either real or unreal, and at other times the mind wandered into delightful realms.

e. Two ladies whom I persuaded to try the drug took 10 gr. each, and experienced same general symptoms; but they had in addition very profuse menstruation which lasted 5 d. At another time, several months after, they tried it again with the same result. They had always menstruated regularly; one had never any uterine or vaginal troubles. (G. M. PEASE, M.D., *N. Engl. Med. Gaz.*, i, 204.)

II. *Poisonings.*—1. Mr. C— took gr. ss of ext. about 4 p.m.; at 4.30 same; at 4.45 gr. j; at 5 and 5.15 gr. ij. Took tea as usual at 6.30. At 7.30 noticed that he gave wrong change to a customer, and felt somewhat nervous and dizzy. A few m. afterwards went out on an errand, felt irresistible inclination to run; at same time sense of contraction of entire genito-urinary system, and great desire to micturate, with much strangury on doing so; also excessive dryness of fauces, coming on suddenly and with much thirst. On returning to his place of business found it impossible to keep still, on account of irresistible desire to be constantly on his feet. At this point I first saw him, and found him walking at quick pace, almost on his toes, round a room about 8 ft. square. Within a few m. spasms supervened, during which at times flexors and extensors, at times abductors and adductors of whole body were thrown into violent alternate action. While sitting in a chair, one m. his feet would beat a tattoo on the floor, and the next his knees beat violently together. Spasms increased in severity and frequency for ½ h., and then gradually diminished, after emesis had been induced. He could, by strong exercise of will, restrain spasms, but on fresh access they were much more violent. They were unaccompanied by pain, but after a time he experienced sense of weariness, as after spasms of tetanus. He describes his mind as being "dull" and somewhat confused, but without any loss of consciousness. Only once was there any mental disturbance, when he thought vomitus was head of hippopotamus, and again, a bunch of earthworms. He noticed that if anything ludicrous were said or done, or any idea suggested which required more than most common exercise of mind, spasms were considerably intensified. Senses of vision and feeling somewhat diminished; tinnitus aurium; conjunctiva much congested. Pulse at 8.30 about 140, somewhat irregular in character and frequency; at 10 it was 90. After an emetic symptoms passed off in 24—30 h. (F. H. BROWNE, *Bost. Med. and Surg. Journ.*, lxvii, 291.)

2. Surgeon, second officer, and Custom-house officer on a ship (at Calcutta) took some extract, to experience stimulant and exhilarating action only; dose was too strong, and I learnt from the surgeon that they had about 3 gr. each. They were in state of collapse. Stimulants

soon roused the doctor. Second officer required external and internal stimulants and cold affusions, and the poor Custom-house officer, being weaker, had nearly succumbed; it took 2 h. before he was out of danger, with the aid of turpentine enema, cold affusions, ammonia, and constant moving about. Next d. they all had headache and lassitude. Effects seemed to be same as those of opium; contracted pupil, pale, clammy countenance, and stupor unless roused. (*Lond. and Ed. Med. Journ.*, xiv, 270.)

3. A young Hindu was admitted about 4 p.m., April 5th. He was in the habit of smoking bhang or gunjah, and had smoked it that m. His symptoms were,—total insensibility; sensation completely in abeyance; no reflex action could be excited by tickling soles or by pinching skin, nor was latter felt; eyes were open and fixed vacantly, pupils natural; jaw fixed and immoveable; mouth closed. The arms could be flexed or extended easily, but in whatever position they were placed they remained; thus when stretched out in front of him, or when placed vertically above head, they remained in that position until moved again. Lower extremities, too, could be placed in any position, and remained so. In spite of douches and other local measures, he continued in same condition till 8th, when he lay as it were asleep, breathing calmly; eyeballs turned upwards; muscles of arms and legs quite relaxed; very slight reflex action when soles are pinched or tickled; loudest calling or roughest shaking does not rouse. Seven h. later I found him being led about by two friends, moaning incessantly, and with difficulty prevented from putting hands into mouth, apparently to bite them; continually opening and shutting mouth. Two d. subsequently there were signs of returning consciousness; he could be roused by calling to him in a very loud voice, when he turned towards speaker, but then relapsed into same condition, and walked to and fro, moaning continually. Next d. consciousness was regained, but he had lost all recollection of what had occurred from m. of day of admission. (*Med. Times and Gaz.*, xviii, 135 (1859).)

4. Mrs. S—, æt. 31, suffering from spasmodic asthma, had same symptoms twice after dose of 30 min. of tinct. Head became giddy, then came drawing pain at chest, later at heart. Next pinching pains in flesh of body, and bearing-down pains in loins*; and bowels and bladder acted with force. Then tongue became swollen and drawn to roof of mouth; flesh felt puffed all over, and tingled. Then retching came on; then continual yawning, with a shiver; then she felt as if she wanted to be held tight, as in hysterics, power of speech seemed lost, and all sounds heard seemed to be at a distance. So it continued 5 or 6 h., head being very bad all the time, with noises in ears; and when it was laid down it felt heavy, with a hot swimming coming over it repeatedly. She then fell into an unnaturally deep sleep, lasting all n.; after which, having taken a little coffee, same symptoms continued

* "Dr. Simpson said at the Edinb. Obstetrical Society, July, 1850, that C. ind. was oxytocic. I have noticed the uterine contractions acquire great increase of strength and frequency immediately on taking drug, or 4—5 m. afterwards. In 7 cases out of 16 to which I gave it it proved oxytocic." (McGrigor, *Monthl. Journ. of Med. Sc.*, 1852, p. 124.)

more or less during d. till they gradually went off. (H. DOBELL, *Ibid.*, 1863, ii, 245.)

5. Three Hindu patients suffering from rheumatism (two acute, one chronic) each took 1 gr. of resin in solution at 2 p.m. At 4 it was reported that one of them was becoming very talkative, singing songs, calling loudly for extra supply of food, and declaring himself in perfect health. At 6 he was falling asleep; at 8 he was lying on his cot quite insensible. On raising his arm it remained in the altered position; he was in a state of catalepsy, perfectly pliant and stationary in whatever position we placed him, no matter how contrary to the natural influence of gravity on the part. He was almost insensible to all impressions; gave no sign of understanding questions; could not be roused. A sinapism to stomach gave no pain. Pharyngeal muscles acted freely in deglutition of a stimulant medicine. The second patient had meanwhile been roused by the noise, and seemed vastly amused at the strange aspect and statue-like attitudes in which the first had been placed; when on a sudden he uttered a loud peal of laughter, and exclaimed that four spirits were springing with his bed into the air. In vain we tried to pacify him; his laughter became momentarily more and more uncontrollable. We now observed that the limbs were rather rigid, and in a few m. more his arms or legs could be bent and would remain in any desired position. He did not complain of any pain from a sinapism; but his intoxication led him to such noisy exclamations that he was removed to a separate room. Here he soon became tranquil, his limbs in less than an h. gained their natural condition, and in 2 h. he said he was perfectly well and excessively hungry. The first patient remained cataleptic till 1 a.m., when consciousness and voluntary motion quickly returned; and by 2 a.m. he was in exactly the same state as the second. The third man had no symptoms; he was accustomed to smoke gunjah in his pipe. (As 3.)

6. A woman took for neuralgia about r. orbit 45 drops of tinct. of resin (gr. iij to ʒj) every morning when pains began. It made her feel a little light-headed; there was also intense itching round orbits and over body and extremities, especially lower ones; itching round orbits is referred to numerous close-set points, elsewhere the points are distant. Itching very intense for several h. after dose, afterwards gradually diminishes, but is felt at distant parts of surface 20 h. after dose. (LYNCH, *Prov. Med. and Surg. Journ.*, vi, 9.)

III. *Experiments on animals.*—1. M. Lieutaud found that the preparations of hemp invariably produced in carnivorous animals and fish a sort of intoxication, manifested by oscillating movements, dulness and sluggishness, while herbivorous animals offer no sign of its influence in whatever dose it is administered. The experiments made by O'Shaughnessy gave essentially the same results, and those performed by Mabillat led to a similar conclusion. (STILLÉ.)

APPENDIX.

[In the following section (the like of which we purpose appending to each volume of the *Cyclopædia*), we shall give, under the head of each medicine, such additions and emendations as the progress of knowledge, our own observations, or the communications of colleagues, have shown to be required.—EDS.]

Abies nigra.—P. 1, l. 9 from bottom, and p. 2, l. 15 from top, before "meatus" insert "l."

Acidum aceticum.*—In place of I. 1, read as follows:

1. *a.* BERRIDGE has observed in two cases, from drinking vinegar, bright red flush on cheeks, in one with heat, in another with spots of perspiration on forehead. (*M. H. Rev.*, xv, 297.)

b. In another case, on every tasting of vinegar, face got red and felt hot, with perspiration on it. (IBID., *Am. Journ. of H. M. M.*, ix, 245.)

c. Mrs. — informs me that vinegar causes in her coppery taste, commencing in tongue and going all over roof of mouth and lips; tongue sometimes feels as if it stuck to back of mouth, and could not move; then, after she has been to sleep she wakes with feeling as if heart stood still, and cannot draw her breath; then there is itching and smarting all over skin, but without redness or eruption, itching lasting 3—4 h., and preventing sleep. (IBID., *The Organon*, iii, 284.)

d. A young lady, of florid complexion, told HERING that each time she partook of pickles (made without spices) she had a very much flushed face, lasting several h. (*Am. J. of H. M. M.*, viii, 222.)

In II. 2, after "cough," insert "(first dry, afterwards moist);" and before "extremities" add "lower."

Acidum benzoicum.—In I. 3, l. 7, after "awoke," insert "about 2 o'clock." P. 4, l. 7, for "stitching and burning, &c.," read "stitch passing perpendicularly upwards through r. great toe, followed by burning which increases gradually again to a stitch, appearing afterwards in l. toe, from which it vanishes with thrilling (m., while lying down)."

Acidum carbolicum.†—The following are to be substituted for the corresponding sections of the pathogenesis at p. 4:—

I.—1. *a.* Dr. BACMEISTER, æt. 39, nervous-sanguine. Feb. 7th, 1869.—At noon, 5 dr. of 1st. In 5 m., while walking out-doors, sense of freedom and expansion in lungs, also in nasal passages. In 20 m. smell much more acute; soon after

---

* In our expansions, &c., of the presentation of this and the two following medicines we have been much influenced by the suggestions made by Dr. Berridge and by the editor in the *Homœopathic World* for 1885. Where they have not been adopted, we beg our colleagues to believe that it has not been for want of due consideration.—EDS.

† It was upon this drug that we first tried our "prentice-han'" at condensing (see *M. H. Rev.*, April, 1883); and in our zeal we went farther than we have ever gone since. We have therefore given above a less abbreviated presentation of some of its provings.—EDS.

coryza, only in cold air. In 1 h. slight aching in l. forehead; in 2 h. crampy stitch in l. groin, while sitting.

b. On 11th, at 2.30 p.m., 5 dr. of 12th. Soon after slight heat of face and forehead, especially l., with pressure in l. temple, seemingly on surface of brain. In 15 m. sense of fine electric sparks in l. ala nasi, sternal end of r. clavicle, middle finger of l. hand, and vertex, in succession during about 1 h. It changed slowly to a pricking itching, with desire to rub, and relief therefrom. After dinner long-continued hiccup, and in e. entire disinclination to study. Two d. later soreness and swelling of l. cheek internally, opposite molars; cheek in the way of teeth when biting; aching pain to l. of middle of l. shin-bone. Throughout proving and subsequently motions more frequent than usual.

2. *a.* Dr. HOYNE, sanguine-bilious, very susceptible to drugs. Jan. 20th, 2.40 p.m., took 5 dr. of 6th. During next 35 m. aching in r. upper teeth, r. shoulder (when bending forwards), and forehead (transient); drawing in l. arm from shoulder to elbow (transient) and in r. jaw; burning in l. eye (transient) and top of head; tingling or itching in little finger and on scalp, first r., then l., also on inner thigh and scrotum (here temporarily relieved by scratching); pain in r. toe as if pressed upon; constant tired heavy feeling in l. arm; nasty taste in mouth; sense of flatulent distension in stomach, better after raising a sweetish-sour fluid. From 3.15 to 3.40 itchings and pains in various parts, once so sharp in centre of cheek he thought he had been bitten. Head pains most severe, worse on r. side; most of them seem to affect this side first and then go to l. Pulse 82; head hot, with burning at top and r. temple, beating in r. side; eructations; incessant yawning. From 3.40 to 5.30 headache worse, disappears when moving about, but eructations become more frequent; head heavy when leaning forward. By 5.45 all symptoms had disappeared, save burning pain at vertex; pulse 68, rather low. No appetite for meat. At 7.30, when blowing nose, mucus was tinged with bright red blood. Slept well, dreaming of travelling. Next m. expectoration of much thick whitish mucus; r. shoulder lame and sore while walking; nausea most of m.; neuralgic frontal headache. After dinner felt well. 22nd.—Desire for stool all d., though natural action had occurred in m.; emission of large quantities of putrid flatus.

b. Repeated dose at 5 p.m. on 30th. During 1st h., stomach ached and seemed full of wind, which was often belched up; tingling in l. great toe, followed by feeling as if pressed on; pulse, at first 70, in 15 m. rose to 82, whence it fell to 75 (30 m.), and 68 (50 m.); pains, itchings, and yawnings as before; irritation in throat, causing constant hacking cough, l. side of larynx very sore when pressed on; constant pains in head, very similar to those of *a.*, relieved (7.30) by smoking after tea; slight uneasy pains in r. lung; emission of fœtid flatus; felt dull and stupid, back of head sore, pain on swallowing. During e. unusually cheerful, but had rumbling in bowels as if diarrhœa would come on. Slept well, but dreamed of fire, which woke him, when he found himself feverish, though window was open and room cold. In m. woke with hard headache (upper half), disappearing after breakfast. Had passed urine with unusual frequency in n., during d. it was increased in quantity, and had very strong smell. Occasional chilly sensations. Next d. only occasional pains in hips and shoulders.*

c. On Feb. 4th, 3 p.m., took 5 drops of 3rd. In 15 m. soreness of throat, and very sharp stitches there, growing worse for a time, passing off by 4.10, save when swallowing and pressing on upper larynx (worse r. side). During 1st h. head as before, with transient recurring pressive pain in l. ear; while writing (3.35) letters seem to run together; pains, itchings, and belchings as before; sensation on skin just below knee as if part was touched with ice. During 2nd h., aching across small of back and in legs; neck lame and stiff when moving head; intense burning itching of genitals; pulse 70 at outset, now 84; headache still, worse on stooping. During 3rd h., burning pain in eyes, worse in l.; pulse 86; dull aching in whole l. chest and abdomen. At 9 p.m. beating pain with humming sound in both ears. Next d. only very severe aching in r. hip-joint on walking; on 6th same, slighter, in l. shoulder-joint. From 7th to 12th small vesicle, ending in a pustule, on centre of nose.

In I. 7, l. 4 from bottom of page, after "water" read "that n."; and at end add "On 24th, while walking, bruised pain in middle of front of l. thigh, deep seated, and lasting only a few m."

* It was during this proving that the acne disappeared.

In I. 8, . 2, to "1_x" add note—"Probably 1st dec. attenuation of solution next mentioned." L. 14, for "feet" read "lower extremities." L. 16, after "e.," read—"Feet felt bruised whole time." L. 31, after "him," read "N. restless and dreamful."

In I. 12, for "X. Y." read "Man, æt. 39."

In I. 13, l. 6, after "hypochondrium," insert "and both iliac regions." L. 8, after "No. 12)" insert "also some diarrhœa."

After I. 20, insert following:

"I accidentally inhaled vapour of C. ac., but felt no effects till next d.; then experienced soreness of air-passages, with hoarseness, which increased up to 4th d., and remained till 12th. On 5th d. cough came on, with (later) expectoration, on appearance of which soreness abated. During 3rd n. passed nearly 3 quarts of pale urine. On 4th d. hard aching pain in r. hip, like sciatica, slowly moving along course of nerve, till at n. it reached bend of knee and ceased. On 6th d. awoke with stitching pain in r. neck, which increased up to 8th, when pain recurred every 5 m. for 8 h.; was nearly gone by 10th d. Appetite was good all the time. (T. D. PRITCHARD, M.D., *N. Y. St. Hom. Med. Soc. Transactions*, N. S., i, 156.)"

After II. 5, insert following:

"A baby had carbolic oil (1 in 20) applied freely to sore arm after vaccination. In a few d. he began to seem out of sorts. The slight sickness he generally had after he was nursed increased to quite an unusual extent. Motions became greenish, and napkins were stained of inky or smoky hue at other times. He became exceedingly drowsy, and did not care for food. At n. was feverish, continually groaning, and too drowsy to cry. Dressings were not reapplied from this date. Next m. face flushed, eyes glazed and red, brows contracted; breathing quick and laboured; throat red; dry cough. After a hot bath, free perspiration. Breathing same up to n., when it fell, and at 10 p.m. he was cool and sleeping quietly. From this time he rapidly recovered, but greenish colour of motions persisted for a time. (MIDGLEY CASH, *Hom. World*, Aug., 1885.)"

Acidum fluoricum.—In I. 6, l. 4, the "pain about r. wrist and finger-joints" occurred 1 h. instead of 3 h. after dose.

After II. 1, insert

"III. *Experiments on animals.*—1. M. Maumené gave, for a period of 5 months, fluoride of potassium to a dog, at end of which time a swelling similar to goitre appeared in the neck. The dog then made its escape, but 3 years later was again discovered with a swelling which appeared to M. Maumené to have all the characters of goitre. (*Med. Times and Gaz.*, May 5, 1866.)"

Laurocerasus.—Dr. PEIRO, on two occasions, found tinct. given for bronchial catarrh to young married men cause temporary impotence. (*Med. Call*, March, 1883.)

Acidum lacticum.—In I. 3, l. 6, after "produced" add "—also profuse secretion of tenacious mucus, which must be constantly hawked up."

Acidum nitricum.—After I. 3, insert "A lady, making experiments with a galvanic battery, was exposed for some time to the fumes of N. ac. At once she is taken with a peculiar anguish, runs to her physician, but, as he is not at home, hires a carriage to drive to the house where she expects to find him. During her ride all the anguish is gone. Arrived at home, she feels as bad as ever; and feels herself thus forced to drive about the whole d., till all the effects of the acid have passed off. (HENDRICKS, *Am. Journ. of Hom. Mat. Med.*, iii, 120.)"

Acidum sulphuricum.—The following are some of the cases of poisoning referred to in II. 1. *b*.

2. *a*. A shoemaker's apprentice, æt. 16, swallowed in m. some sulph. ac.; he was at once taken into hospital and died collapsed at 6 p.m. Urine passed at 2 p.m. was of bloody brownish-red colour, turbid, acid reaction, sp. gr. 1028, contained much albumen. In urine very few blood-corpuscles, but a large amorphous mass of yellowish-red colour. *P.M.*—Abdominal walls much distended. A large quantity of clear blood-coloured fluid in both pleural sacs and pericardium. In heart much dark greasy coagulated blood, which had but few intact blood-corpuscles. Vesical m.m. pale, turbid blackish-brown urine with numerous flakes. Kidneys showed nothing to the

eye, were not examined microscopically. Great swelling of follicles of root of tongue and m.m. of fauces. M.m. of œsophagus rather dry, of brownish colour. Stomach much distended. Contents viscid greasy mass. In fundus m.m. quite destroyed, the muscular coat laid bare. In pylorus m.m. pretty well preserved. In duodenum m.m. black coloured, very friable—jejunum more normal.

b. A smith, æt. 25, drank some sulph. ac. about 11 a.m. and was soon after taken to hospital. Complained of violent pains in stomach. Constant retching and vomiting of black bloody masses. When he swallowed magnesia he always coughed. He got opium and slept some h. He had stridor of respiration increased by pressure on larynx. The pains increased, collapse came on and he died on the e. of the next d. The urine soon after he came in was clear yellow, acid, and contained no albumen. That passed in the e. of the first d. was reddish yellow, turbid, had a great reddish sediment, acid, sp. gr. 1025, contained much albumen and hyaline and granular cylinders, and a large quantity of cellular elements and blood-corpuscles. The urine drawn off at noon next d. was clear yellow, had less albumen. *P.M.*—Bloody serum in pericardium. Blood in heart coagulated. Nothing observable in lungs. In buccal cavity and palate the epithelium was covered with a thin black layer and was readily detached. In fauces, m.m. partially destroyed, epiglottis and ligam. aryepiglottica much swelled, brittle, œdematous, epithelium readily detached. Œsophagus very contracted, its m.m. brownish, with here and there grey epithelial streaks. Larynx contracted, m.m. very swollen, red, its m.m. on posterior wall readily detached. In abdominal cavity some bloody fluid. Intestines much distended with gas; partly grey, partly red. Spleen moderately large, soft. Kidneys pale, the incision shows a slight yellow colour. In stomach brownish-black fluid, the like in duodenum and jejunum. The walls of these parts very hard, the fundus ventriculi soft. The inside of stomach in its whole extent occupied by broad, high, black swellings, greatest in big curvature. The black colour extends deep into m.m. Its serous membrane injected. M.m. of duodenum and beginning of jejunum very soft, blackish, swollen. Bladder empty. Some of the uriniferous tubules are distended and filled with cellular contents. Some of them show fatty degeneration. The glomeruli are large, full of nuclei. The interstices between the tubules are abnormally wide and contain more granules than normal. Fat globules among the nuclei. (LEYDEN and MUNK, *Virchow's Archiv*, xxii, 237.)

3. *a.* A servant-girl, æt. 16, drank on Oct. 20th, at 11.30 a.m., a good mouthful of dilute sulph. ac. (1 to 5) on an empty stomach. Immediately a constant violent burning in mouth and along œsophagus to stomach. On drinking water she vomited at first dark yellow, then black stuff. Four h. after swallowing the acid she was admitted to the hospital. Countenance red and distorted with pain. Tongue-tip deprived of epithelium, is bright red, with partial thick white fur. The m.m. of palate and pharynx swollen, very red, with white spots and stripes and some small flat ulcers. Dysphagia, which is attended by great pain. Epigastric pains on pressure. Magnesia, leeches to larynx, and almond emulsions were employed. On 23rd the pain and difficulty of swallowing had so much increased that nothing but ice-cold water could be taken, which was grateful owing to the burning thirst. Everything else as soon as it passed the pharynx was immediately rejected. Profuse secretion of saliva often mixed with blood. The inflammation of the m.m. extended to larynx, which was tender to touch. On the 26th some food got into stomach, but was immediately vomited along with some blood. Acute pains came on in the region of the r. lower ribs. They came in paroxysms, especially at n., and were excited by deep inspiration. The painful points of Valleix below the 6th and 10th ribs were very well marked. These symptoms recurred repeatedly on the following d. They declined with the amelioration of the pains in pharynx. Obstinate constipation during the whole time. (FRERICHS, *Wien. Med. Wochensch.*, 1862, No. 35.)

3. A servant-girl, æt. 24, May 31st, at noon, swallowed a mouthful of sulph. ac. Immediately fainted. On coming to in 10 m. she vomited black stuff several times. Brought to hospital at 2.30 p.m. She got soap-water, magnesia and ice pills. At 5 p.m. cheeks red, slightly moist, expression anxious, and features distorted. From r. commissure of lips downwards is a parchment-like strip where the epidermis is coloured brown, lips swollen and painful when touched. All buccal cavity and tongue covered with white layer. Swallowing difficult and very painful, pain from mouth down to stomach. Speech difficult, pain in larynx increased by speaking and pressure. Much

brownish mucus ejected from mouth, resp. rapid and rattling. Abdomen distended, epigastrium tense and painful to touch. Spleen somewhat enlarged. Urine acid, sp. gr. 1038, contains a little albumen.—1st June. Vomited once. Every attempt to swallow anything resulted in its regurgitation. Got glycerine and bitter almond emulsion. When the slough came away there occurred bloody mucus and saliva. Difficult respiration caused by swelling of m.m. of larynx. Coughing caused great pain in larynx, threatening of suffocation.—3rd. Paroxysmal stitches in lowest ribs on both sides, painful neuralgia of intercostal nerves, spreading next d. to lumbar nerves. Hyperæsthesia of skin, which was always present at the seat of the neuralgia even when no paroxysm was on, extended first to extremities, then over whole body and even face; the slightest touch caused loud complaints, no ease could be had in any position. Morphia was injected hypodermically; this brought refreshing sleep. Next d. complained of pain in the organs touched by the acid and of nervous symptoms. On the 4th d. the swallowing was improved. Patient could eat and drink very little. At beginning of 2nd week appetite returned, though the pains in stomach continued. Patient much emaciated. Food caused bilious vomiting. No vomiting at end of 3rd week, but appetite still worse. M.m. of mouth quite healed, palate and pharynx still red and painful to touch, hoarseness continued. At beginning of 4th week patient seemed to be recovering, but on 2nd d. of week the most violent pains in stomach came on with copious vomiting, the vomited matter mixed with coagulated black blood. This lasted 2 d., and the stools also were coloured black with blood. When the vomiting declined the patient felt nausea and had acid eructation. She had also fits of cardialgia of 1 m. duration, and dyspnœa causing anxiety. Then came on photophobia, roaring in ears, vertigo, once syncope. Emaciation went on, the skin was dry and scaly, the face quite colourless, speech hoarse and hollow, almost incomprehensible. Pulse thread-like, abdomen retracted. The patient could not retain any kind of food. Nutritious clysters were given, but did not seem to be absorbed. The urine contained no chlorides, the stools, which occurred every 2 or 3 d., were large and devoid of bile, they also contained a little blood. There was great tenesmus. After several attacks of syncope the patient died on July 27th, 57 d. after taking the poison. The urine on the 9th d. contained albumen and some casts. The quantity of urine gradually diminished, but its sp. gr. increased; every trace of chlorides disappeared during the last days.—*P.M.* Heart small, contracted, but little blood in it; muscular structure of heart pale, partial fatty degeneration. Œsophagus somewhat contracted behind cricoid cartilage and just above stomach, the m.m. there replaced by cicatricial tissue. Stomach and intestines very contracted, some blackish fluid in stomach. In the cardia some cicatrices, which extend in stripes along reddened m.m. of posterior wall of stomach. In the small curvature a continuous cicatrix to pylorus, which is so contracted that it will scarcely admit a blade of the scissors, the walls of stomach very hypertrophied; a portion of the duodenum is involved in the cicatrix. The remainder of duodenum is much congested. Close to valve of ileum a large Peyerian plaque with swollen follicles. Sigmoid flexure congested. Spleen hard, dark blue, small. In posterior wall of larynx cicatricial streaks. Kidneys large, rather congested, its canaliculi contain granules and fat corpuscles. (*Ibid.*, No. 36.)

4. A cobbler's apprentice, æt. 16, on June 3rd, at 5 a.m., drank a mouthful of strong sulph. ac. He drank milk to allay the pain, and vomited at first black, later bloody stuff. He was brought to the hospital, and magnesia and ice pills given, which relieved him somewhat. Skin moist, temp. 38·5° C., face red, pulse 116, resp. 24. The pains behind sternum to stomach are burning, aching, and cause anxiety; they are much increased by swallowing, which is effected with great difficulty and only of fluids. Pressure on and behind larynx very painful. Epigastrium distended and very tender. Tongue covered with greyish fur, portion of its epithelium detached. Vomiting ceased, but eructations commenced, and each time brought up a small quantity of reddish-brown fluid.—4th. All symptoms increased, voice hoarse. The pain in abdomen severe, extending from stomach to meso- and hypo-gastrium. Burning throat, swallowing very difficult, and fluid swallowed immediately vomited tinged with blood.—5th. Better, tongue clean and m.m. of mouth free from sloughs, but still red and swollen. Vomiting ceased on 8th. At end of 1st week voice was quite right, swallowing easy. The irritability of the stomach continued and in 2nd week he still vomited after all food. He had acid eructations after drinking water, and the burning thirst continued. In 3rd week he had tenderness on pressure over

symph. pubis, frequent call to urinate, and the urine passed with cutting pains. The prostate gland felt through rectum was swollen and very tender. This went off in about nine d. But patient emaciated and grew very weak, the pulse got small and quick (100—116), temp. 36·8° C. On June 25th, in the r. lower part of chest, he had paroxysms of violent stitches, especially when he breathed deeply. Nothing abnormal on auscultation. An acute pain on pressure to r. of 4th—10th vertebra in the axillary aspect of 5th—10th intercostal space, at the point of junction of the corresponding ribs to the cartilages. The skin between axilla and mamma is very sensitive. Vomiting recurred after this to a great extent, the vomited stuff was acid and mixed with bile. He became collapsed and seemed as though about die, but he rallied, the vomiting in the 6th week became less, his strength increased. At end of 6th week he got a great swelling of l. parotid gland; in 7th week this opened and discharged pus by the meatus auditorius. During all his illness bowels very constipated. The urine showed albumen and cylinders, and free uric acid for 5 or 6 weeks. (*Ibid.*)

5. A cook, æt. 34, who had been in hospital for cough, palpitation of heart, swelling of legs, and emaciation. On her dismissal, not quite cured, drank in despair on Nov. 6th, at 8 a.m., 2 mouthfuls of sulph. ac. (1 strong acid to 4 water). Immediately violent pains, burning in throat, great pain in stomach, followed soon after by vomiting of black stuff. Brought to hospital at 10 a.m.; skin cool, great cyanosis of face, extremities, fingers and toes, which felt very cold. Pulse very small, scarcely to be felt, regular, 72; respiration calm; temp. 34·5° C. She had violent pains in throat, especially on swallowing; pain in gastric region. Epigastrium rather tense, very sensitive to touch and pressure. Milk is immediately vomited along with blackish-brown fluid. The microscope shows these brown parts are epithelium and blood acted on by the acid. P.m., milk and ice, magn., morph. subcut. In e., pulse 76, temp. 35·6° C., no vomiting since noon. Violent pain when swallowing, tenderness of epigastrium, cyanosis continues. Urine deposits a flaky sediment of red colour, acid reaction, the sediment consists of pavement epithelia and many cylinders, granular, sp. gr. 1033, no albumen or sugar.—7th. Pulse regular, small, 104, temp. 35·3°. Skin warmer. Pain on swallowing less, more pain in umbilical region, which is very painful to touch. No stool. Urine as yesterday. E., pulse 104, fuller, temp. 37°. Less pain, no vomiting. A firm brown stool, cyanosis gone, abdomen moderately tense. Urine contains many pus-corpsucles.—9th. Pulse 100, resp. 24, temp. 38·4°. Slept well, cheeks red, warm skin. Epigastrium more distended and very painful to touch. More pain when swallowing. Lips, palate, fauces, and tonsils show circumscribed white spots. Urine, sp. gr. 1026, as yesterday. E., pulse 88, temp. 38·5°, large shreds come away from mouth, pain in swallowing great.—9th. Pulse 112, resp. 40, temp, 37·9°, urine as before. E., pulse 100, resp. 32, temp. 39·1°. The shreds of membrane continue to come away from mouth.—10th. Urine contains much uric acid. E., pulse 112, temp. 38·2°, pains less.—11th. Little sleep, continues to eject shreds.—13th. More pains on swallowing. Vomited with great retching a long blackish-brown firm tube, rough on outside, smooth internally, the m.m. and part of muscular coat of the œsophagus 34 centimetres long. Patient went on apparently improving.—Dec. 2nd. Throat uneasy, something seems always to rise up in it, vomiting for the last few d. repeatedly. Swallowing became so difficult that on Dec. 4th she could not swallow at all.—13th. Can swallow liquid food without difficulty. Emaciation increasing. She gradually wasted away and died on Jan. 5th.—*P.M.* Stomach attached by fibrinous bands to pancreas. Its walls are moderately thickened and its size is small. The small curvature is so contracted it will only admit the little finger, pylorus very contracted, will only allow a crowquill to pass. Internal surface covered with coat of pus, pale red-white cicatricial streaks with intervening pale tissues. No m.m. apparent. Fundus of the size of a thimble, smooth internally, partly strongly injected. Corresponding to pylorus, the outside of stomach is fast attached to liver and omentum. Œsophagus very much contracted, its walls very thin, cicatrised. [The report of the *P.M.* is very long, but the above are the principal things observed.] (WYSS, *Arch. d. Heilk.*, x, 1869.)

Aconitum.—After II. 10, insert following:

"A child of 10 swallowed some of contents of a phial of hom. tinct. She soon began to show symptoms of illness, which rapidly increased till Dr. Baxter saw her about 6 p.m. He found her sitting, with most anxious expression of countenance, face

flushed, skin hot and dry, pulse 140. She complained of heat and soreness in throat, heat and considerable pain in stomach. There was also what seemed an almost constant spasmodic action of diaphragm and stomach, which was very distressing. It was a most peculiar symptom—hiccup and apparently an attempt to vomit at same time. On being asked, she said she felt only slight nausea. Cider vinegar was administered, with rapid improvement; spasm ceased after 1 h., in 4 h. pulse was 100, skin moist, face flushed, some thirst. She was somewhat restless and feverish during n., but in m. declared herself well as usual, only a little weak. (*U. St. Med. Inv.*, June, 1880.)"

Aconitinum.—To introductory statement add—[Experiments recently made by Böhm show that the "pseudaconitin," from A. ferox, is when applied locally of considerable anæsthetic power, diminishing capacity of recognising differences of temperature and separation of points of contact. See *Brit. Journ. of Hom.*, xli, 285.]

Allium Cepa.—The following symptoms have been (by an accident of unique occurrence) omitted, and should be supplied in their respective places:

I.—1. *a.** After 1 m., throbbing behind r. ear; after 3 m. burning in r. upper lid externally, and throbbing in 2 last molars; after 5—6 m., squeezing pain in throat anteriorly in region of os hyoides, aft. 7 m., posteriorly and inferiorly, r.; after 15 m., nausea; after 30 m., nausea coming up in back of throat; after 50 m., noisy discharge of fœtid flatus; after 70 m., pain in l. side of vertex; after 1 h., pain in l. ankle-joint; confusion in occiput, first on both sides and towards upper part, pressing sideways, then behind ears in whole occiput (*sic*).

I.—1. *b.* 1st d., frequent difficult emission of inodorous flatus, e.; violent throbbing pain in l. big toe, in knuckle of metatarsal joint, e. 8th, 9th, 10th d., on waking, m., erection with painful tension, without sexual desire. No time mentioned: Flickering and dazzling before eyes, everything danced before him, head full and heavy as if bound up, whole head became hot and felt swollen and heavy in vertex, with great weariness so that she must lie down (after cutting onions). Burning taste mostly in palate. Horrible sickness in stomach with very little eructation which relieved. Headache on both sides of occiput, later only on r., later only on 2 large round spots in "love of approbation," still later a general and humming numb feeling. Heat and heaviness in head from forenoon till e. (after eating onions).

I.—3. *b.* Dull feeling in head, gradually increasing to headache, extending from forehead to vertex; frequent painless discharge of flatus.

I.—3. *c.* "Feeling in head as if there were not room enough, and as if everything would come out at forehead."

I.—4. 2nd d., drawing pains in l. side of throat, better in cold air. 3rd d., tongue covered with dirty fur, especially behind, m.; dry red hands, as though he had been in the cold.

I.—5. 2nd d., pressive pain in occiput, with numb feeling in elbow-joint.

I.—6. Agreeable warm feeling in urethra; urine frothy but clear.

I.—9.† Heat down œsophagus to stomach; feeling of diarrhœa, soft stool.

I.—10. 2nd d., pain in l. iliac region.

Antimonium.—III. 3, l. 6, for "Mosley" read "Mosler."

Apis.—In I. 3, l. 1, for "28th" read "20th."

In II. 17, l. 5, for "1878" read "1868."

Mr. Langstroth (see I. 4) reports that in 1874, by which time he had become impervious to the sting, he sold all his bees. Next year, he extracted some stings for a friend who wished to have the poison. That n., a moaning in sleep (which used to come on at beginning of each year's work among his bees) recurred severely; and therewith was intense dryness of tongue and fauces; sense as of heartburn; smarting of eyes; heavy drooping sensation in lids; breaking out of fiery spots over various parts of body; disposition to almost tear flesh of cheeks; dreaming of most excited

---

* In l. 4, for "increased" read "inwards;" in 1. *b.*, l. 3, for "aching" read "itching," in l. 13, for "embarrassed" read "numb."

† In l. 5, for "about" read "above."

kind, full of violent motion. Some of these symptoms recurred subsequently at every contact with bee-poison, even on receiving letters from those who handled bees, until he began to keep them again, when his former comparative invulnerability returned (*Hom. World*, Jan., 1886.)

Apocynum.—8. *a*. For "Marshall," read "Wanstall."

Aranea diadema.—I. 3. The following symptoms have been obtained from a proving on a healthy woman:—In ring and little fingers of both hands feeling as if they had gone to sleep and of formication; periods 8 d. too early, too strong and too copious; at n., immediately after lying down, sudden violent pains in teeth of whole upper and lower jaw. (v. GRAUVOGL, *Text-book of Hom.*, ii, 355.)

Argentum nitricum.—I. 7, l. 1, for "Schacbert" read "Schachert."

Arnica.—On p. 391, l. 6, for "April" read "August."

Belladonna.—I. 2, l. 2, for "13" read "14." I. 16, l. 5, for "ten" read "two."

Barium.—On p. 524, the bottom line should have been the top one.

Cactus.—We are indebted to Dr. Rubini for a copy of his original pamphlet on this drug, annotated by himself, so as to denote the symptoms observed on himself and Mad. Rubini respectively (both of whom, he tells us, took 10 drops of the mother tincture daily). We received this too late to be utilised in forming the pathogenesis in the body of our work; but are glad to present our readers with the following reconstruction of Dr. Rubini's part of it:

I.—1. *a*. Dr. RUBINI. On 1st d., great heat of head and inflamed face, as if he had stood before a strong fire, also excessive pain in head, with maddening and suffocating feeling, so that he cannot rest in bed, temples throbbing so violently that it seemed as if skull would burst; momentary dazzling of sight; noise in ears, diminishing hearing during d., like rushing of river all n.; during n. dry cough from itching in larynx; great thirst, causing him to drink much water; great desire to pass water, but can pass none for a long time, at last it flows abundantly; after a very short rigor at 2 p.m., slight fever with pain in head, terminating with slight sweat at 4 p.m.; slight rigor at 10, great coldness for ½ h. at n. On 2nd d., feeling of emptiness in head; again pulsating pain in temples, getting intolerable. On 3rd d., m., fœtid breath; insupportable heat in abdomen, as though something burnt him internally, abdominal walls when touched with hand feel burning and much hotter than other parts of body; bilious diarrhœa, present also on previous d., with abdominal pains, 8 stools in d.; sanguineous congestion in chest, preventing him lying down in bed. On 4th d., very great and intolerable pain in head, from congestion there; acrid acid in stomach, which comes up into the throat and mouth and makes everything he eats taste sour. On 6th d., dazzling of vision, after which there appear before eyes circles of red light, obscuring sight; constriction in œsophagus, preventing swallowing, he must drink a large quantity of water to get it down into stomach; slight delirium at n., ceasing on rousing up, but recommencing as soon as he falls asleep again. On 8th d., constriction in throat, obliging him to swallow saliva frequently. On 9th d., watery diarrhœa, very abundant each time, 10 motions in m., always preceded by pains and borborygmus. On 10th d. talked nonsense while asleep at n., even when aroused speaking unconnectedly; feeling of constriction in throat which prevents free speech, and on forcing himself to speak voice is low and hoarse; constriction of neck of bladder, preventing passage of urine till after much straining. On 11th d., vertigo from sanguineous congestion to head. On 12th d., face inflamed and red, with pulsating pains in head; mucous diarrhœa preceded by drawing pains, 3 stools in d. On 15th d., extraordinary irritability, smallest contrariety putting him into a passion; sensation of great weight in anus and desire to evacuate, but nothing passes. On 20th n., interrupted sleep, feels weary next m. as if he had not slept at all; great appetite, but weak and slow digestion; great itching in ankles, which next d. extends to lower part of tibia. On 24th d. a dry scaly patch, 2 inches broad, appeared on l. internal malleolus, and on 38th d. came on r., while on 30th and 48th d. respectively similar patches appeared on r. and l. elbow (outer side).

Besides these symptoms, prover states that for first 5 d. he had great burning in stomach; for first 6 d. discoloration of face and emaciation; for first 4 d. weakness of sight, objects appearing as if clouded; for 1st 12 d. pain in l. mamma increased by touching and relieved by gently lifting it; for first 10 d. sensation of very annoying movement from before backwards in cardiac region, as if a reptile was moving about inside, worse d. than n.; for first 15 d. sharp wandering pains in thoracic cavity, very annoying, especially in scapular region, anxiety recurring in e., and transient sensation of weight in stomach every time drug is taken; for first 14 d. loss of appetite and nausea; it is only by an effort he can swallow a few mouthfuls. After 3 d. pulsating pain in temples and ears (especially r. side) became continuous and very severe, and lasted 8 d., with feeling of weight; pulsations so severe as to lift head from pillow, giving much annoyance and causing depression; pain making him cry out, increased by sound of talking and by strong light. For 20 d. tensive pain in vertex also, recurring every 2nd d. Another marked symptom for 15 d. was constriction of chest, described as if hoop of iron constricted it, or a cord were tightly tied round it (at false ribs); this caused oppression of breathing, aggravated by movement; heart also felt constricted, as if an iron hand prevented its movements; on 10th d. same sensation in throat; on 3rd d. sense as if someone were pressing and holding chest tightly, so that he cried out, "Leave me alone!"; on 5th d. constriction felt in shoulders, so that he could not move.

Without note of time, he is said to have experienced sensation of great weight in r. temple and eyebrow, diminished by pressure; dimness of sight, periodically recurring, so that at a few paces he cannot recognise even his friends; very slow digestion, even after 8 or 10 h. taste of food rises up in throat, all food causes weight in stomach, and so much suffering that he prefers to remain without eating; constipation as from hæmorrhoidal congestion, swollen varices outside anus causing much pain, at anus itching, smarting and pricking as with sharp pins (ceasing on rubbing); formication and weight in arms, which cannot be raised freely,—l. worst; œdema of hands (specially l.), and of feet and legs to knees, pitting on pressure. He cannot rest still when sitting, but must throw his legs about hither and thither involuntarily; depression and languor all d.; general malaise, and such weakness as to be unable to rise from seat; great prostration of forces, so that he must remain in bed, not feeling able to use his legs.

b. Mad. Rubini. Was sleepless 1st n., without apparent cause, for 2 following n. from pulsation in scrobiculus cordis and ears; for 5 d. more could not sleep in early part of n., and when she fell asleep she awoke suddenly. An unwonted melancholy, with great taciturnity and irresistible inclination to weep, affected her for first 6 d.; on 7th became fear of death, thinking she had some incurable disease; on 9th took form of love of solitude, avoiding those about her who tried to comfort her. On 2nd d., heavy dull pains in region of heart, increased on pressure; on 4th d., acute pain there, impeding respiration and motion of body, continuing 4 d. more, with such painful stitches as to cause her to weep and cry out loudly; all this time constant oppression and anxietas, as if chest were constricted with an iron hoop, and could not expand in normal respiration, with periodical attacks of suffocation and faintness, cold sweat on face and absence of pulse,—also constant great palpitation d. and n., worst when walking and lying on l. side, increased also on recurrence of catamenia. Sensation of great weight on stomach for first 8 d.; loss of appetite on 2nd and 3rd d. On 4th d., distressing sensation in bowels as if serpent was twisting about there; on 5th d., wandering pains about umbilicus, ceasing and recurring periodically; on 7th d., very violent pains there, almost causing her to faint, more or less all d. Constipation first 6 d., on 7th diarrhœa of very loose fæces, preceded by great pain, 8 motions from 6 to 12 a.m., none later. On first 4 d. urine more copious than usual; on 1st n. involuntary escape, and for 5 n. more frequent desire, with large flow; on 4th d., urine passed by drops with much heat, which next d. increases gradually and becomes insupportable. After 8 d. very painful menstruation accompanied by great prostration of strength, so that she must remain in bed 3 d. On 1st d., general rigor, so severe as to make teeth chatter, lasting 3 h. though she heaps blankets over her; succeeded by burning for 20 h., with suffocation, pain in head, and restlessness so that she cannot remain quiet in bed; copious sweat follows. After 13 d. quotidian intermittent fever periodically for many d., beginning with slight rigor at 1 p.m., then burning heat and dyspnœa, and (in e.) great pulsating pains in uterus and its neigh-

bourhood, extending to thighs, increasing up to 11 p.m., when all terminates with a slight sweat, and she is free till 1 next d.

Without date,—heavy pain in head as if great weight lay on vertex, with great prostration and weariness, pain diminished by pressure, increased by sound of talking or any other noise; heavy pain in forehead lasting d. and n. for 2 successive d., increased by strong light and by sound of loud voices or noises; pain and drawing in occiput, increased by moving head, relieved by bending head backwards; painful drawings in muscles of l. chest, which extend to shoulder-joint and impede respiration and free motion of arm; nervous palpitation of heart, much augmented on occurrence of catamenia; constant and annoying pulsation in cœliac artery; heavy feeling in stomach; insupportable irritation in urethra as if she should make water constantly; urine reddish, turbid, very abundant, on cooling depositing red sand; painful constriction in groins extending round pelvis; general weakness, so that she cares not to do anything, speak, stand, or walk across room.*

* The symptoms without note of time were omitted in our former presentation of the drug, as we had no assurance that they were not clinical only (which 40 symptoms in the list obviously and avowedly are).—EDS.

INDEX.

PRINTED BY J. E. ADLARD, BARTHOLOMEW CLOSE.

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on or before the date last stamped below.

X1101
C995
v.1
1886

A cyclopaedia of drug pathogenesy.

5551

NAME	DATE DUE